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Companies

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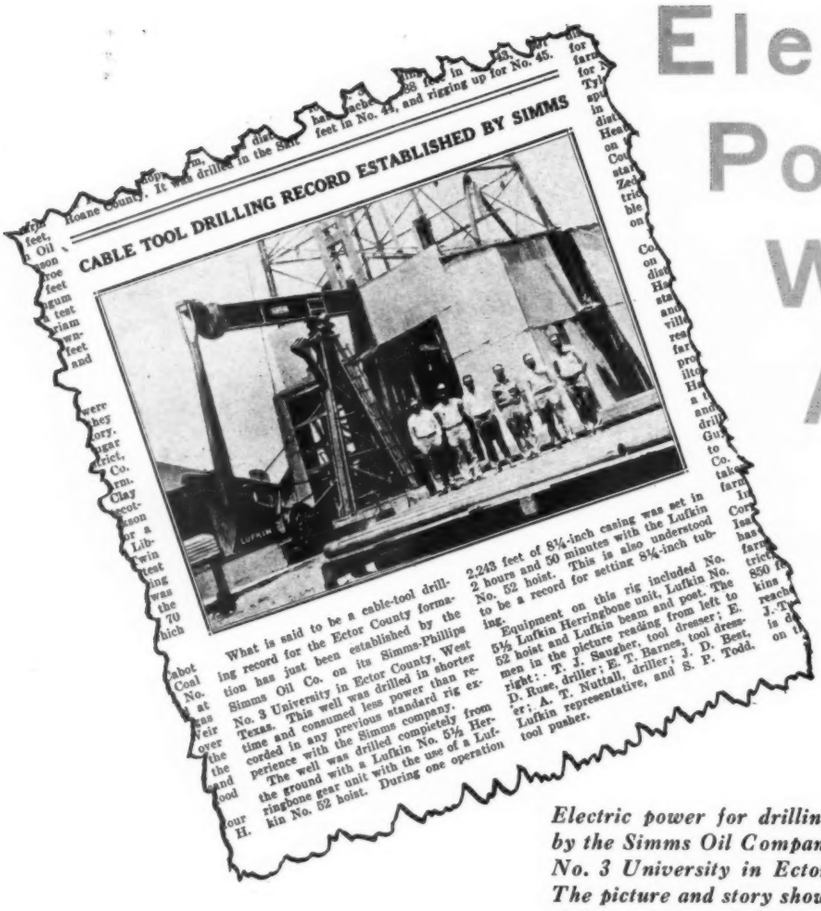
Electric Power Wins Again



CABLE TOOL DRILLING RECORD ESTABLISHED BY SIMMS

What is said to be a cable-tool drilling record for the Ector County formation has just been established by the Simms Oil Co. on its Simms-Phillips No. 3 University in Ector County, West Texas. This well was drilled in shorter time and consumed less power than recorded in any previous standard rig experience with the Simms company.

The well was drilled completely from the ground with a Lufkin No. 5½ Herringbone gear unit with the use of a Lufkin No. 52 hoist. During one operation 2,243 feet of 8¼-inch casing was set in 2 hours and 50 minutes with the Lufkin No. 52 hoist. This is also understood to be a record for setting 8¼-inch tubing.

Equipment on this rig included No. 5½ Lufkin Herringbone unit, Lufkin No. 52 hoist and Lufkin beam and post. The men in the picture reading from left to right: T. J. Saugher, tool dresser; E. D. Ruse, driller; E. T. Barnes, tool dresser; A. T. Nuttall, driller; J. D. Best, Lufkin representative, and S. P. Todd, tool pusher.

Electric power for drilling was used exclusively by the Simms Oil Company on its Simms-Phillips No. 3 University in Ector County, West Texas. The picture and story shown are reprinted by special permission of the Simms Oil Company from the October 23 issue of The Oil and Gas Journal.

Shorter time and less power consumption are two outstanding features of the Simms accomplishment. Commercial equipment, powered with a 25/55 HP 440 Volt 1200 RPM Electric Motor connected to the unit by means of 11 "V" type rubber belts on a 46″ center, was used for the entire drilling process.

The well was spudded in at 2 a.m. June 24 and completed to a depth of 3650 feet August 3, a real tribute to the speed and efficiency of electric power for drilling.

Further information about electric power for drilling may be obtained from the Commercial Dept., Fort Worth, or any district office of Texas Electric Service Company.

TEXAS ELECTRIC SERVICE COMPANY

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Support of Curtailment Now Best Policy

Highest daily average estimated total production in 1929, week ended Aug. 24, 2,975,435 bbls. Lowest in 1929, Dec. 27, 2,595,320 bbls.

Benefits of Plan Will Be Experienced in Spring With Possibility Potentials of Flush Fields Will Be Reduced

By Andrew M. Rowley

Highest daily average estimated light oil production in 1929, week ended Sept. 14, 2,534,524 bbls. Lowest in 1929, Apr. 13, 2,142,036 bbls.

One of the results of announcements of further restrictions in buying by several crude oil purchasers seems to be a more widespread discussion of whether proration and curtailment of production has been the best course which might have been followed by the petroleum industry. Such talk at this time serves merely to muddy the waters. The industry is committed to a plan of curtailment in crude oil production and in the manufacture of gasoline which will carry it until April 1 next. Any deviation from this plan now or any efforts which might serve to prevent that plan from being made 100 per cent effective will simply counteract the benefits the industry expects to receive next year from the curtailment movement this winter.

The question in the mind of everyone seems to be "When may we expect relief from the present situation?" All admit lifting proration would result in chaos for an indefinite period. Achievement of the plan to hold crude oil and gasoline production to requirements between now and next April will at least permit the industry to enter the main consuming season in 1931 on a stable foundation. With the increase in consumption which will come in the spring there, naturally, will be a greater demand for crude oil and present restrictions may be modified to some extent.

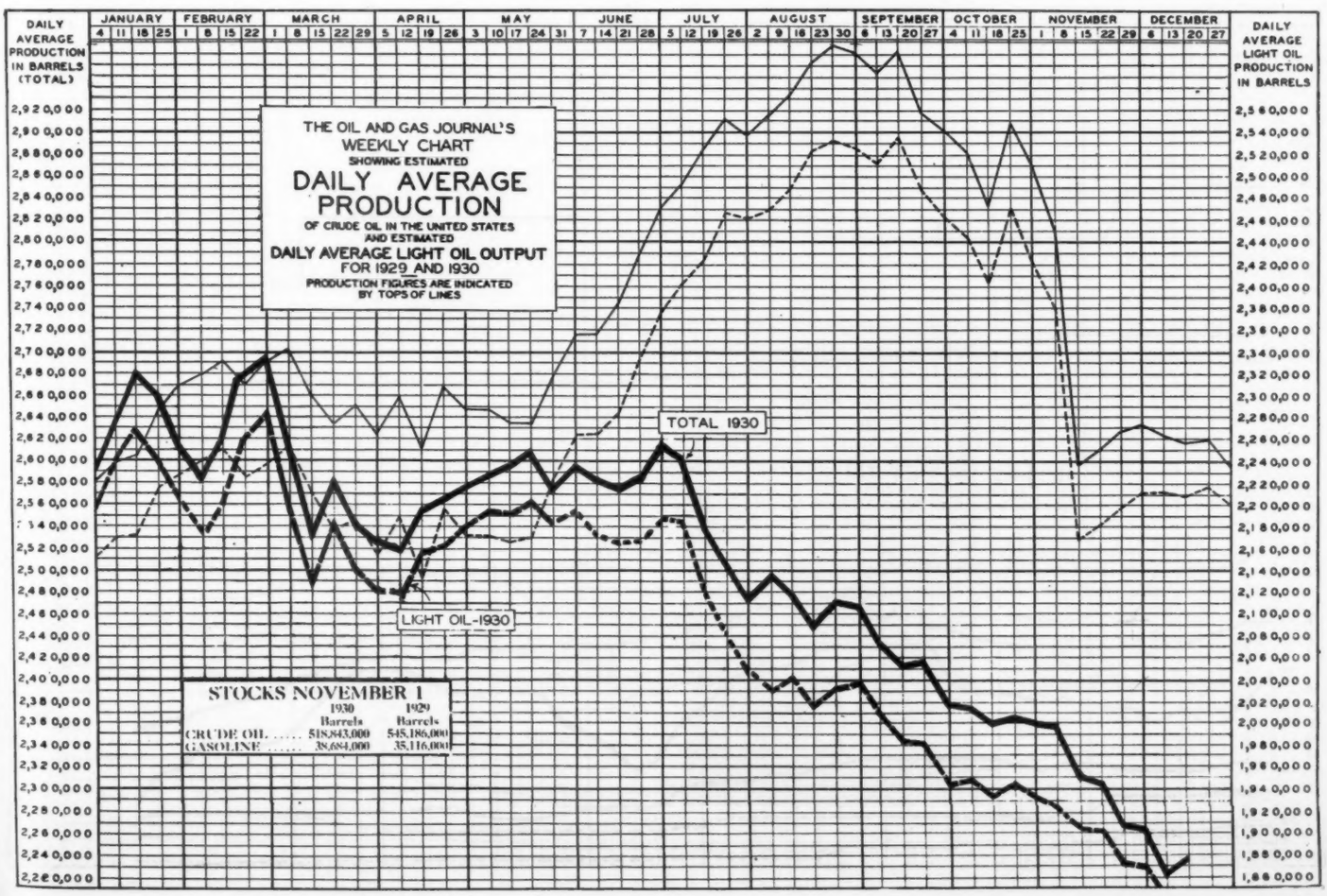
And, there is a growing belief that when the allowable production is increased in some of the flush fields, figures on "potential" production of these fields will be found to be entirely too high. "Potential production" is and has been a nightmare to all branches of the industry. The silver lining to the cloud may manifest itself in a very substantial reduction in the figures on what production certain of the large flush fields can actually make for any length of time.

PRODUCTION IN THE UNITED STATES

Estimated daily average production of light and heavy gravity oil in the United States for week ended December 13 and a comparison with the previous week follows:

	—December 13—		—December 6—	
	Light	Heavy	Light	Heavy
Oklahoma—				
Oklahoma City	85,095	.....	87,280	.....
Seminole-St. Louis	159,725	.....	145,910	.....
Remainder of State	224,515	.....	218,330	.....
Total Oklahoma	469,335	.....	451,520	.....
West Texas—				
Hendricks	54,781	.....	55,130	.....
Yates	103,280	.....	107,330	.....
Remainder	104,132	.....	104,306	.....
Total West Texas	262,193	.....	266 766	.....
North Louisiana	38,440	5,060	38,890	5,280
Arkansas	16,175	35,290	16,010	35,360
North Central Texas	102,068	.....	104,910	.....
Texas Panhandle	71,855	.....	76,735	.....
East Central Texas	41,845	.....	41,657	.....
Kansas	103,420	.....	104,940	.....
Total Mid-Continent area	1,105,331	40,350	1,101,428	40,640
Gulf Coast	.....	183,308	.....	182,884
Southwest Texas	.....	87,885	.....	91,049
Eastern	111,000	.....	111,000	.....
Rocky Mountain area	101,154	.....	101,435	.....
California—				
Santa Fe Springs	94,000	.....	93,500	.....
Long Beach	99,000	.....	94,750	.....
Playa Del Rey	45,750	.....	43,500	.....
Elwood	44,000	.....	35,000	.....
Ventura Avenue	45,500	.....	48,000	.....
Kettleman Hills	24,000	.....	24,750	.....
Remainder of State	175,000	84,000	175,000	84,000
Total California	527,250	84,000	514,500	84,000
Total United States	1,844,735	395,543	1,828,363	398,573
Grand total	2,240,278		2,226,936	

→ **Total Increase 13,342 Bbls.; Light Oil Increase 16,372 Bbls.** ←



Natural Gasoline Quotations Lowered

All Grades at Low Point of Year. Expansion in Cracking Complicates Refinery Curtailment Program

By C. O. Willson

Natural gasoline prices in the Oklahoma (Group 3) market dropped to a new low for the year during the past week. The principal grade—AA—was available the first of the week at a price range of 3¼ to 3½ cents. The B, BB and C grades were bringing a low of 3 cents. Grade A of which there is only a small quantity produced, declined in sympathy with the other grades and was purchased on Monday and Tuesday at 3¾ cents. The price reductions of the past week continued a decline in natural gasoline which started in early October when Grade AA was selling at 6 cents. The seasonal decline in refinery demand for neutrals as blending material coupled with the low prices prevailing on the refinery grades of gasoline, is held responsible by the trade authorities for the present market situation and there is no expectation of improvement before the start of the new year.

In the refinery market proper, prices were fairly steady. There were no changes in the crude oil or retail markets pointing to important shifts in fundamental conditions and Oklahoma sellers for the most part were content to await new developments before lowering or advancing quotations on their products.

The generally slow demand for practically all products has not changed. Even the low cold test grades of fuel oil and furnace oil which have been the outstanding products of the market for several weeks, were not so active the past week. The supply of this material, however, is limited in the Mid-Continent and other inland refining groups and it is believed that prices on these products can be maintained unless there is a drastic reduction in crude oil prices.

Among the sellers there is considerable discussion as to the feasibility of plans to restrict refinery operations during the remainder of the winter and early spring months with the view of preventing excessive accumulations of gasoline which will prove a burden to the market during the season of maximum gasoline consumption as they did the previous two years. This is in line with the policy outlined for the refinery division at the recent meeting of the American Petroleum Institute.

A number of refiners are having difficulty in adjusting their operations to this plan. As now outlined it means additional reductions in crude oil runs to stills in all refining groups of the Mid-Continent. The trouble appears to lie in the increased production of cracked gasoline and the wider use of natural gasoline for blending. Many refiners have made substantial reductions in their crude oil runs to stills with a resulting decline in the production of straightrun gasoline but they have expanded their cracking operations and are using more natural gasoline so their total motor fuel output is about the same as last year.

In this connection, the Bureau of Mines data on Mid-Continent refinery operations for the first 10 months of this year and last year, are illuminating. The production of straightrun gasoline this year totaled 47,387,000 bbls., a decline of 707,000 bbls. when compared with the 48,094,000 bbls. for the same period last year. This reflects the reduction in crude oil runs to stills from 166,514,000 bbls. the first 10 months of last year to 163,525,000 bbls. the first 10 months of this year.

This reduction in straightrun gasoline output, however, did not prevent an increase of over 8 per cent in total gasoline production at Mid-Continent refineries. This was due to an increase of 5,706,000 bbls. in the production of cracked gasoline, the output for the 10 months of this year totaling 28,627,000 bbls. For the same periods the natural gasoline blended at refineries increased from 6,291,000 to 7,758,000 bbls., a gain of 1,467,000. Thus the increase in natural gasoline alone was more than double the decrease in straightrun gasoline.

The same general situation in regard to the production of straightrun, cracked and natural gasolines has obtained in other areas.

Curtailing Cracking

No method of curtailing cracking or restricting the use of natural gasoline has been suggested which is acceptable to the operators. Those who have made a study of the situation both from the maunfacturing and marketing angles doubt if any plan can be formulated which will induce refiners to curtail their cracking operations.

There are excellent reasons for this attitude on the part of the operators. In the first place, the market for the heavy end products obtained in a skim-

(Continued on Page 145)

REFINED MARKET BAROMETER

A reduction in Diesel oil prices at coastal points and a general decline in pale and red neutrals were the most important price changes of the past week. The refinery gasoline market was unsettled at most points with many reports of price cutting. Scattered reductions in gasoline tank wagon and service station prices also tended to disturb the refinery market. Natural gasoline prices declined sharply in the Mid-Continent. Kerosene prices are higher than the prevailing market for the domestic grades of gasoline at many refineries, although the product is still considered weak. Fuel oil prices, including gas oil and furnace oil distillates, were steady. A large export order advanced prices of wax at eastern refineries.

Mid-Continent—Rapid decline in natural gasoline prices. Continued slow demand for refinery gasolines with minor changes in prices. Better demand for kerosene. Fuel oil, gas oil and furnace oils unchanged. Lubricants weak. Wax unchanged.

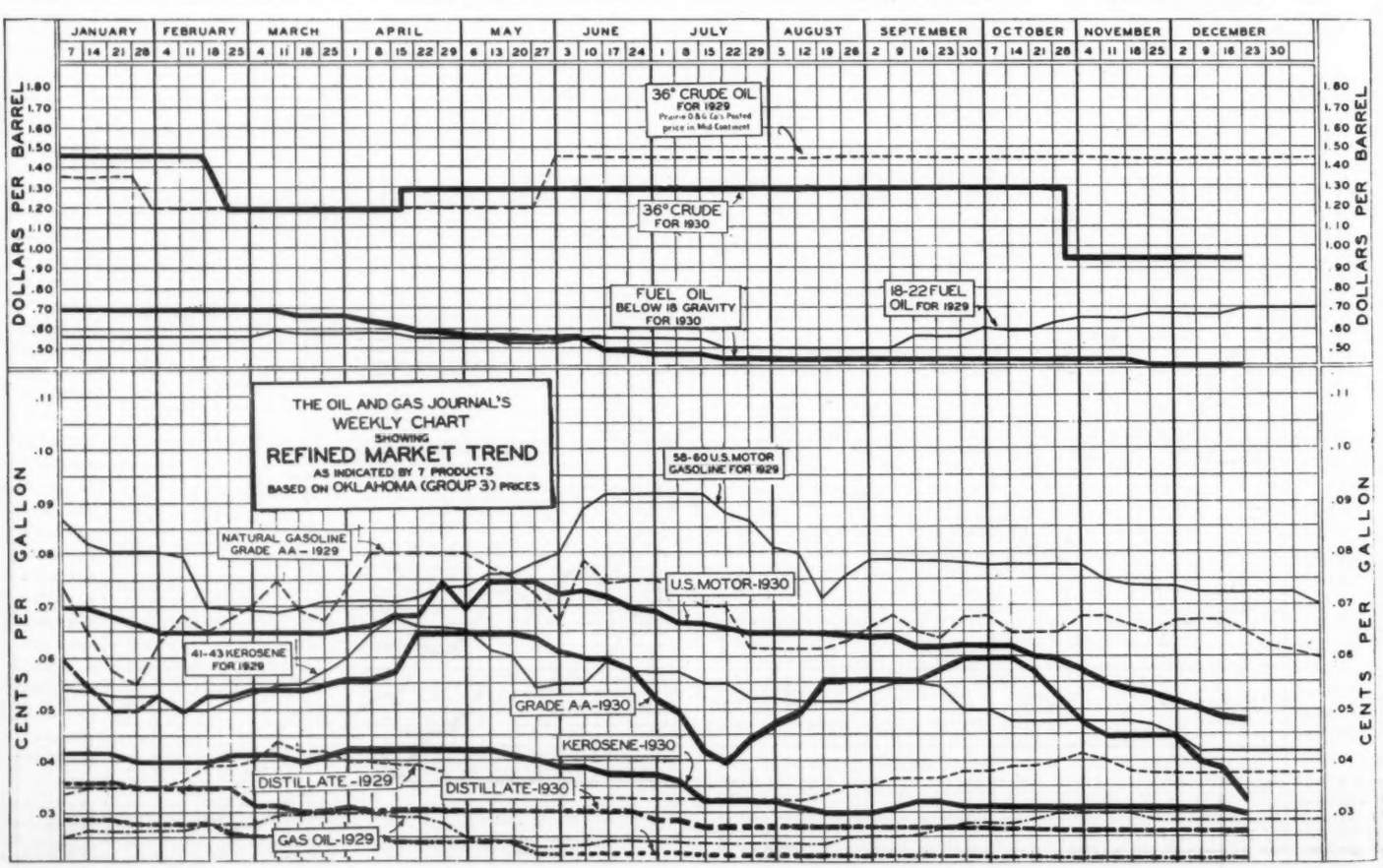
East Coast—Diesel oil and lubricants price reduced. Fuel oil prices unchanged. Gasoline weak and price cutting general in domestic sales. Kerosene weak. Sharp upturn in wax prices due to export demand.

Pennsylvania—Slightly better tone to kerosene market. Gasoline unchanged. Neutral oils and cylinder stocks slow but no important changes in prices. Wax more active.

California—Gasoline market continues unsettled although return to normal tank wagon prices in Northwestern states interpreted favorably. Domestic gasoline prices lower. Prices on several grades of red neutral oils reduced.

Gulf Coast—Market slow on all products. All pale and red neutral oils reduced.

Chicago—Light movement of gasolines. Natural gasoline prices lower. Several grades of fuel oil reduced. Lubricants slow.



The Bugaboo of "Potential Production"

Gigantic Figures Built Up on a Foundation of Guesswork Have Thrown an Undue Scare Into Oil Industry

By James McIntyre

The oil industry in the United States has become frightened by a thing called potential production.

At first we had only one kind of potential production. Now we have two kinds, one called "rated potential" and the other "actual potential." The one is pure bunk; the other is anybody's guess.

"Rated potential" is arrived at in this way: A well comes in, let us say in the Yates Pool, in Pecos County, Texas, flows 10 minutes and gauges say 695 bbls. Then it is shut in for lack of tankage and pipe line outlet. The 10-minute production is multiplied by six to get the "hourly potential" and the sum of this is multiplied by 24 to get the "daily potential," and the well is called a 100,000-bbl. well. And all on the basis of a 10-minute flow. Would the well make 100,000 bbls. the first 24 hours if it had been permitted to flow the entire period? Would it make 50,000 bbls.? or even 10,000 bbls.? No one knows, because the big wells in the Yates Pool have not been permitted to flow for 24 hours. Thus they have Yates "rated" at say 5,000,000 bbls. a day or more. When it comes to estimating the "actual potential" production over an indefinite period we are given all varieties of guesses on what the field would do in one month, but the writer has not met anyone with courage enough to hazard a guess on what it would do the second month. No one knows and one man's guess is as good, or as bad, as that of another.

The method of arriving at "rated potential" is the same in Oklahoma City Field in Oklahoma as in the Yates Field in Texas.

If we ask the rated potential production of the Oklahoma City Field we are told that it is about 4,500 000 bbls. a day, but the man who says so grins when he does it. If you ask the actual potential, covering a full-time wide-open performance of the field for say a month the estimates will run all the way from 400,000 bbls. a day to 700,000 bbls. a day. "What would it do the second month?" you ask. I attempted to find someone familiar with the field who would hazard a guess on the second month, but failed.

Confusing Differences of Opinion

The "rated potential" production of the United States is loosely given as 11,000,000 bbls. for one day and the "actual potential" is loosely given as 4,716,000 bbls. per day, which, if it were correct, would indicate that we are shutting in 2,500,000 bbls. of actual production at this time. Again we say the rated potential is pure bunk, and the actual production is merely guess work. Petroleum economists differ in their figures on bona fide shut-in production all the way from 1,500,000 bbls. up to 2,500,000 bbls. per day. With such a wide variation between estimates of men who are supposed to know what they are talking about, how is the layman to arrive at any safe conclusion.

This "potential production" has become a great bugaboo. It has cast such a gloom over many men engaged in the oil business that one would conclude from their mental attitude that the industry was never going to crawl out of its slough of despond. As we sit before our radios in the evening and listen to the inimitable "Andy" mulling over the books of the Fresh Air Taxicab Co. and hear him mumble, "eight million, nine million, ten million," these mythical millions remind us of "rated potential" production—they mean almost as much.

The oil business is in the doldrums. There is no getting around that. We all knew a year ago that it would be. But we are 12 months nearer better times in the industry than we were a year ago, and are actually producing 425,000 bbls. per day less than we were at the opening of the present year and the curtailment and proration programs are more firmly established than they were a year ago. The whole industrial structure the world over is 20 per cent under normal, but general industry is going on the assumption that the long, hard, up-hill pull to bring conditions back to normal is nearing the end, and that by spring in 1931 the going will be easier.

Many Fields Steadily Declining

A comparison of production at present and a year ago shows a mere handful of fields with an increased output, either in pipe line runs or in "potential production." Most of the fields in the country show the usual decline expected of them. There are a few areas where care must be taken to keep back an oversupply. In particular might be mentioned Kettleman Hills, Yates, Van, Hobbs and Oklahoma City.

Of all the fields in the United States that are frightening the oil man by their size Kettleman Hills, California, looms as the greatest, but the program for the development of that field is such that it may be expected to remain out of the picture for a long time. Kettleman Hills will be slowly developed. True it will be a paradise for the manufacturer of oil well supplies and natural gasoline equipment when it gets going as wells in that field will cost about $250,000 each and the natural gasoline plants will cost twice as much as the wells, but the big structure will be carefully administered for no other reason than that it has thrown a scare into the industry. Nothing is known as to what Kettleman Hills will actually do. Present day estimates may be greatly changed a year from now.

With the Hobbs Field in New Mexico, another bugaboo, the case is different. The Hobbs Pool may be compared to the Hendricks Pool just south of it, and the history of the Hendricks Pool is well known.

Those familiar with conditions in the West Texas fields will recall that wells in the Hendricks Pool, when opened wide to take 24-hour potential gauges, were flooded with salt water in such quantity and with such results that the wells on each occasion fell off in oil production at once. The condition become so serious that it was decided not to open the wells again but to put the matter of prorating production in the hands of a field committee which arbitrarily said how much oil each well might produce during the ensuing proration period. Hendricks is now down to 54,000 bbls. a day. A year ago it produced 98,000 bbls. a day and two years ago 147,000 bbls. a day. It is under "proration," but for a long time has been producing its capacity.

Lea County, New Mexico, in which the Hobbs Field is located, is just north of Winkler County. The formation from which the oil comes is the same in Hobbs as in Hendricks. General conditions in the oil horizon are the same in both pools. Whatever occurred in Hendricks can occur in Hobbs. The field, if permitted to produce a very small part of its production daily, can be made to last a long time, but when spring comes and the demand for oil increases, as it always does with the opening of the automobile demand for fuel, the demand upon Hobbs will be greater. If the wells are opened up the "rated" and the "actual" potential per well may be expected to show a sharp drop.

Remember Seminole

Oil men will remember what happened in the Seminole Field when proration was lifted in the fall of 1929. It was found that there was a sufficient demand for crude oil to lift proration and the wells were permitted to produce to their capacity. To the surprise of all, the wells, after the first head was off, settled back in a few days to very nearly their "prorated" production. As a matter of fact they had been producing practically all they were capable of producing for some time, only no one knew it.

Insufficient pipe line capacity is not the only reason the Yates Pool, in Pecos County, Texas, has been kept pinched in and its production subjected to proration. It is very doubtful if the owners of the properties in the Yates Field would care to develop it otherwise. This shallow field, which is conceded to be one of the most important oil areas in the United States, would be drowned out by sulphur water very quickly if the wells were permitted to flow to anything like their capacity. Whatever the real capacity of this field may be it will not be tested. A vast volume of oil will undoubtedly be taken from the Yates Pool, produced as it has been, but it might be fatal to turn it loose. The danger is great enough to cause owners to continue producing with the utmost conservatism.

Discounting Oklahoma City

The Oklahoma City Pool, which at one time was credited by at least one notably good geologist with an ultimate production of 1,000,000,000 bbls., has recently been so greatly discounted as to be limited to 100,000,000 bbls. This latter figure seems very low, as the field has already produced over 42,000,000 bbls. Other estimates have been made by engineers of 115,000,000 bbls. and up to 200,000,000 bbls. As Oklahoma City has progressed the estimates as to its ultimate production have become smaller and smaller. It is another field that will require careful development throughout its life. It cannot be safely opened wide, even if there were a demand for the oil and pipe lines to transport it. There is believed to be a tremendous volume of salt water underlying both the lime and sand pay zones, and in the interest of conservation—getting the most out of the oil reservoirs—it must continue to produce under restraint.

The Van Field may not measure up to Yates and Kettleman Hills, but this Van Zandt County, Texas, field is one of the most important in the land, though no doubt, like the others, it is overrated. Thus far it has been developed very carefully under a unit operation system. It is subject to the same water conditions that prevailed at Powell and Wortham, which so quickly cut off a big production in those fields because they were closely drilled and permitted to flow their heads off. The Powell Field reached a peak of about 354,000 bbls. one October day and in December was producing only 90,000 bbls. a day. Wortham's first well came in on a Thanksgiving day, in the latter part of November and the pool reached its peak two months later with a production of 168,000 bbls. per day and then it slumped at once and soon lost all importance. Van will not do that. The field will be given every opportunity to yield its fullness of oil and will not be hurried.

Kansas has a couple of pools that look like the best the state has ever developed, but they are not in the class with those already mentioned in California, Texas and Oklahoma.

As for the thousands of other pools in the United States a few are showing more production than they did at this time last year, but the vast majority of them are has-beens and are not to be feared.

It is impossible for any one to say when the big fields of the present day can be drawn upon for 100 per cent of their production, but it is the sincere opinion of the writer that the time will come long before many gloomy ones expect it.

SAYS RUSSIA'S UNDERCONSUMPTION RESPONSIBLE FOR OVERPRODUCTION

In reply to an inquiry regarding world oil conditions Sir Henri W. A. Deterding, managing director of the Royal Dutch Petroleum Co., has sent the following communication to The Oil and Gas Journal:

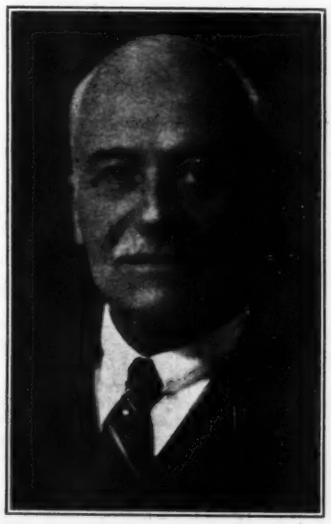
The production of Russia in crude oil in 1913 was 9,050,000 tons. Exports of oil products were 775,000 tons, or in percentage 8.6.

Since 1913 the world consumption, exclusive of Russia, has increased from 46,075,000 tons in 1913 to 197,945,000 tons in 1929, or an increase of 330 per cent.

On the same basis the consumption in Russia would have been, in 1929, 35,580,000 tons. It was, however, 10,250,000 tons, under consumption being 25,330,000 tons.

Thus, if Russia were not acting on the principle (the same as with wheat) that the inhabitants must starve in order to swell exports, the total world's consumption for 1929 would have been at least 25,330,000 tons higher. In addition, one should, of course, remember that the interior stocks of Russia are nonexisting as these have also been exported, while, of course, these interior stocks should have been increased.

The above figures abundantly show that if Russia had a civilized government and were allowed to develop itself normally like other countries, the result would not only be that Russia's exports of oil products would cease, but that oil would have to be imported, and thus there would be no need for anybody to worry about surplus production. It should not be forgot that in 1913 Russia imported 46,325 tons of liquid fuel and in 1914 (prior to the outbreak of the war) 57,583 tons of liquid fuel.



Sir Henri W. A. Deterding, K.B.E.
General Managing Director, Royal Dutch Petroleum Co.

No Condensers Used in Topping Unit

Unique Distillation Equipment in Crew-Levick Refinery Affords Maximum Heat Exchange With Low Operating Cost

By W. T. Ziegenhain

Two topping units of unusual design, featuring a high thermo-efficiency and extreme compactness are being operated at the Petty Island, N. J., refinery of the Crew-Levick Co., a subsidiary of Cities Service Co. The units are unique in that they include no condensers, all of this work being done by heat exchange with the incoming crude. Also, the furnaces are unusually small considering the volume of crude run. Each contains but 1,800 feet of 4-inch tubing but has a capacity of 2,500 bbls. of average crude daily, finishing 50 per cent overhead. Actually, however, each unit is now handling 3,250 bbls. of Venezuelan crude but is taking overhead only 30 per cent to prouce a 14-gravity fuel.

Theory of Design

These units were designed by D. G. Brandt of the Doherty Research Co., and in adopting this method he was able to take advantage of several factors which tend to improve fractionation and produce a maximum yield of distillate of any given endpoint.

As will be seen in the description of the equipment which follows, fractionation takes place by the fractional condensation of the heated vapors while passing through a series of exchangers countercurrent to the incoming crude. These exchangers also contain compartments through which the overhead gas oil is run and also the fuel bottoms. A series of bypass lines for the gas oil and fuel oil compartments permit a variation in the volume of these to be run through any one or all of these exchangers and this is one of the important means of control, and all exchangers may be made to work over a fixed temperature differential.

By this method of control any desired temperature gradient may be maintained through the system. This gradient will be a constant, and the temperature-per cent curve will approach a straight line of any desired slope, in contrast to the sharp bend in the temperature-per cent curve of a tower in which a cold reflux material is introduced in the top.

Since fractional condensation takes place in an area where the temperature difference between the liquid and vapor is not great at any point, there is less chance of "loading" the tower and the overhead includes a greater proportion of desirable heavier fractions.

Description of Tower

The tower and the six tower exchangers must be considered as one unit since a temperature gradient is maintained in the vapor space through all of these exchangers and fractional condensation takes place here as well as in the tower itself. For this reason it has been found necessary to put only six bubble cap trays in the tower.

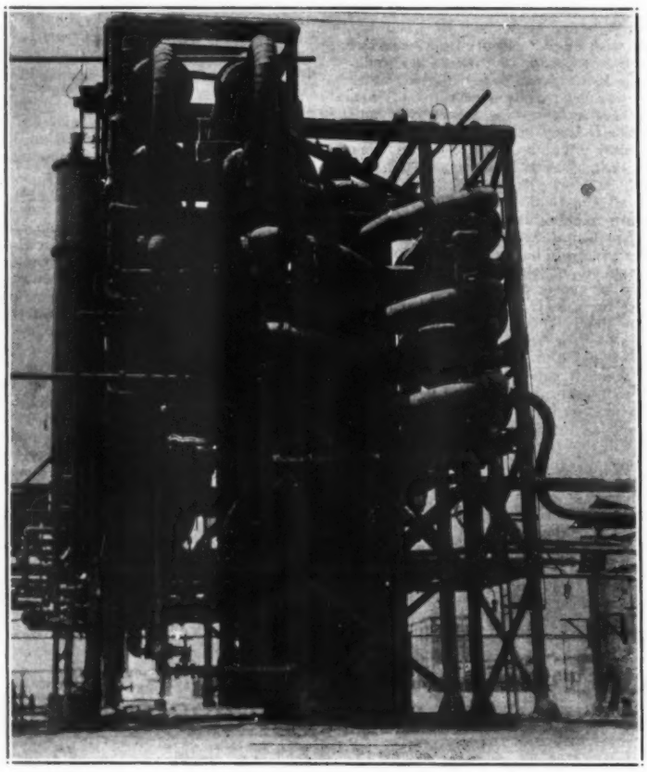
The tower differs from the ordinary type in that above each bubble cap tray is a blank plate set at an angle, as shown in the accompanying flow sheet and this plate completely seals off each bubble cap section except for a 6-inch down-pipe welded through each blank plate which takes the overflow liquid from the plate above and delivers it to the next lower plate. This pipe extends below the liquid level of the lower bubble cap section in each case so there is no chance for the vapors to pass upward.

Before tracing the flow of oil and vapors through the tower it is best to gain a general idea of the design of these tower exchangers which enter into the work of the tower so closely.

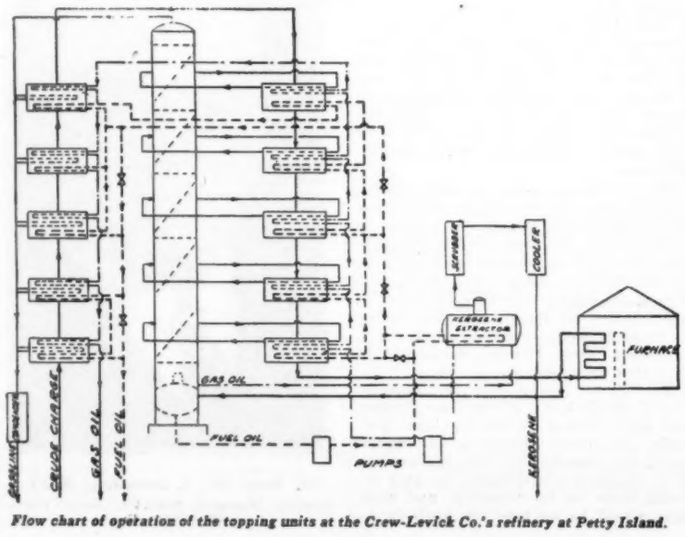
Design of Tower Exchangers

These tower exchangers resemble the ordinary modern tubular exchanger in appearance, the tubes being assembled in bundles and rolled into the end sheets. The essential difference is that each exchanger contains several sections. Through one of these the overhead vapors pass; through another, the hot fuel residuum; and through the third, the hot gas oil. The vapors make a single pass through, while the fuel oil and gas oil each enter compartments on one side of the bundle and leave through compartments on the other side. The construction of the exchangers may best be discussed after referring to the accompanying picture of one of these tube bundles showing the floating head removed.

The tubes are 10 feet long and all 1½ inches O.D. The outside shell is approximately 3 feet in diameter. The vapor section of the tower interchangers contains 87 tubes, the fuel oil section contains 20 tubes on each side and the gas oil section 16 tubes on each side, making a total of 159 tubes. The floating head is tapped for a 10-inch connection, while the inlet and outlet for the fuel oil compartment are 4-inch and the gas oil 3-inch connections.



Side view of one of the topping units at the Crew-Levick refinery on Petty's Island, New Jersey. Note the small pipe still only partly shown on the extreme right. The fractionating tower is the large drum setting on the ground from which the series of five vapor lines may be seen going to the respective tower exchangers. There are six tower exchangers and are shown staggered along opposite sides of the tower. The four vapor exchangers, arranged to form an inverted L are shown in the upper left-hand corner. The small box below these exchangers, and resembling an open type condenser, is a cooling box for the gasoline stream.



Flow chart of operation of the topping units at the Crew-Levick Co.'s refinery at Petty Island.

Returning to the discussion of the operation of the tower, it is simplest to outline the operation going on in one of the six bubble tray compartments, for they are all alike except for a slight difference in the top section.

A section may be considered as the space between any two of the blank plates. This section receives a mixture of vapors from the tower condenser serving the section just below, and as the vapors pass upward through the bubble cap tray they exchange heat with the liquid there in the usual manner. As partial condensation takes place, the excess passes down through the 6-inch overflow line on to the plate below. The remaining vapors then leave this section of the tower and enter another exchanger where partial condensation takes place and then enter the next higher section in the tower. That portion of the vapor that condenses is caught at the outlet of the exchanger and is trapped back on to the same bubble tray.

This continues throughout the six sections in the tower except in the case of the top section. The vapors leaving this exchanger pass through four vapor exchangers instead of returning to the tower. These four are connected in series as one long condenser through which the final overhead vapors from the top of the tower pass and are condensed by the incoming crude.

In the same order, the gas oil and the fuel oil streams leaving the unit pass through each of these exchangers, including the vapor exchangers and all three of these streams heat the crude which is pumped through all of these exchangers also, but in the reverse order.

Gasket a Problem

One of the problems which arose in adopting this type of exchanger to its multiple service was to find a gasket, resistant to corrosion, strong enough to withstand the pressure of the fuel oil and gas oil compartments and also make a perfect seal between the crude being pumped through the shell and the large exposed vapor compartment.

Chrome nickel steel gaskets have been adopted and are made from two stampings of 28-gauge sheets of this metal. The gaskets have an asbestos core to give them resilience and all edges are protected by the overlapping of the one side on the other side.

As the heavier fractions condense in the upper portion of the tower and pass downward, they segregate in an annular space just above the point of entry of the hot crude from the still. Open steam is injected into this compartment to rid the gas oil of light ends. The gas oil is continuously removed from here and enters an extractor or reboiler where it is heated by submerged coils through which the hot fuel oil bottoms are pumped directly from the base of the tower. Open steam is also used in the extractor to effect a complete stripping of the gas oil.

Present Yields

Based on running 18-18.5 gravity Venezuelan crude, the following yields are being obtained when charging an average of 3,250 bbls. per day through each unit:

YIELDS SHOWN AS PERCENTAGE OF CRUDE CHARGED

	Per cent
Gasoline (425 endpoint)	10.0
Furnace oil (130 flash)	9.0
Gas oil (27 gravity)	11.5
Fuel oil (13 gravity)	68.0
Loss	1.5

Fractionation of Gasoline

The effectiveness of the fractionation of the vapors may be judged from the

(Continued on Page 107)

Kelly Shannon Started Out as Lawyer

President of Fort Worth Gas Co. Was Secretary of State in Texas and Going Strong When He Turned His Back on Politics

By Thomas F. Smiley

The fellow who said you can't keep a good man down was not merely repeating something he had read in a book. Take O. K. Shannon as a case in point. They made him secretary of state in Texas and remarked, "Guess that'll hold him for a while." But though the young lawyer was willing to accept a humble station in life like that temporarily, he refused to be hog-tied. He cast an appraising eye over the various occupational fields that seemed to need a wholesome, stimulating influence and picked out natural gas. Today he is president of the Fort Worth Gas Co.

A multitude of minor occurrences preceded Mr. Shannon's abandonment of statecraft for a real job. To mention one of these, he was born in Philadelphia, Pa. Evidently he didn't like the town, for he scarcely had emerged from the chrysalis of infant dresses to the maturity of short pants before he moved to Eastland, Tex. His parents, Mr. and Mrs. J. P. Shannon, who apparently had taken a fancy to him, went along. Here the boy grew to young manhood. In Eastland J. P. Shannon operated a general store and a lumber yard. The son worked in the lumber yard when he was not going to school.

Feeling that he had sufficiently exhausted the educational facilities of Eastland, Kelly (to his friends he is always Kelly) in 1892 entered the law office of S. W. T. Lanham, then a member of Congress, in Weatherford, Parker County. For two years he read law and in 1894 he passed the bar examination and was admitted to practice in Parker County. He and A. J. Boyle then formed a partnership and conducted a law office in Weatherford. In 1897 Mr. Shannon was elected city attorney of Weatherford and he filled that office for two years. The salary was $60 a month, but that was before the high cost of living had been invented and the year following his election he married Miss Emily Armstrong of Weatherford.

Going Up

In 1899 Mr. Shannon resigned the office of city attorney to become chief clerk in the lease department of the State Land Office in Austin, the state capital. The salary of $90 a month may not seem like reckless prodigality on the part of the Texas government, but to the former city attorney of Weatherford it represented a distinct advance on the highway to wealth, since it increased his fixed income 50 per cent.

Mr. Shannon had held this position in the land office four years when his former preceptor, S. W. T. Lanham, now governor, appointed his assistant secretary of state. A salary of $1,800 went with this position. More prosperity. At the end of two years Governor Lanham urged him to accept appointment as secretary of state. Mr. Shannon was not unmindful of the honor thus placed within his grasp, but he had acquired a new sense of values and a more far-seeing vision. As he looked with clearer eyes into the future and studied the end of the road which the politician usually must traved he reached a definite decision regarding that part of his life program immediately ahead. He agreed to serve as secretary of state and one term. At the end of that term he not only would not succeed himself but he would set his face irrevocably against politics as a career.

Only 29, Mr. Shannon was probably the youngest secretary of state Texas ever had. Supporters and antagonists agreed that the office was filled capably and honestly. Among Mr. Shannon's treasures is a letter he received upon his return to private life from Governor Lanham, expressing appreciation of the secretary's high personal character, assuring him of unbounded confidence and extending warm wishes for the retiring secretary's success in any work he might enter. Upon the expiration of the two-year term Mr. Shannon not only had the assurance of another term if he would take it, but of higher and more remunerative political offices after that. But he kept to the letter the resolution he had made when he accepted nomination.

Goodby to Politics

Being a lawyer has much to be said for it, but it doesn't get you much in a material way unless you have clients. Mr. Shannon had none upon completing his service as secretary of state. For more than 10 years he had held political offices. But he hadn't worked in his dad's lumber yard back in Eastland for nothing. Familiarity he had gained there with almost all phases of this business came in handy right at this juncture, for the Fort Worth Lumber Co. needed a manager and he needed a job. So he assembled his worldly goods and his family (a son and a daughter had been born), bought railroad tickets to Fort Worth and bade a more or less fond adieu to the state capital and its allurements. Besides actively directing the lumber business, he acquired a small interest in it.

The Fort Worth Lumber Co. sold out 18 months after Mr. Shannon joined it and at this point he entered the industrial field which was to receive virtually his entire attention thereafter, that is to say natural gas. By way of beginning he associated himself with a group of men who were forming the Consumers Light & Heating Co. in Fort Worth. He had no title, but in reality he was the directing head of the undertaking and attended to almost all matters, legal and otherwise, in connection with organizing the company and getting it firmly established. Five years later the company was taken over by the Fort Worth Gas Co., of which Mr. Shannon was made vice president and general manager. In 1928 he was made president.

Indicative of the growth of the company, it had 4,000 consumers in 1910. Now it has 36,000. It had 48 miles of pipe line then. Now it has 475 miles. For several years Mr. Shannon as counsel for the Fort Worth Gas Co. in addition to his other duties, handled all the company's lower-court cases.

Although born in Pennsylvania, Mr. Shannon always thinks of himself as a Texan, for not only has virtually all his life been passed in Texas, but he has left the impress of his personality upon the industrial and political life of the State.

Annals of Texas tell of the blood, some patriotic, some not, that reddened its soil in the course of its evolution from a Spanish province to the largest State in the Union, but they fail to mention one of the most furious, stubborn and sanguinary engagements in all its vivid history. So let it be set down here for the inspiration of posterity and the perpetuation of high deeds.

The principals in this epic combat were Ogden Kelly Shannon, hereinbefore described as president of the Fort Worth Gas Co., and Earl Conner, one of the foremost attorneys of the Eastland County bar. Both, as is obvious from their names, were Irish, which may explain much with reference to the quick origin and the hearty thoroughness of the fight. Of course the first named was not a gas company president and the other was not an attorney, foremost or otherwise, at the time of the action. They were pugnacious, freckle-nosed 14-year-old boys. Let Mr. Conner tell about the incidents leading up to the encounter:

"Kelly and I were personal friends, as were our families. Our parents, however, were more religiously inclined than we were. We were neighbors in Eastland. One Sunday afternoon the town boys got together and decided to pull off a war. We all went down to the north fork of the Leon River, where the underbrush was very thick. We built a brush fort and then chose sides. I was on the side that was to storm the fort and try to take it, and Kelly was one of those who were to defend the fort. It was in the springtime and the banks of the Leon were lined with producing plum trees. We had 'nigger shooters,' or sling shots, for our artillery and both sides were well supplied with green plums as projectiles.

It Was Kelly's Eye

"Protected by underbrush and oak trees, I stole up close to the besieged works and discovered a small hole, about the size of a silver dollar, in the fortification. An eye was peering through the hole. I took deliberate aim with my nigger shooter and let go. A yell came from within the fort. Of course I didn't know whose eye had been hit, but it proved to be Kelly's."

Here was the casus belli. Thus did an inoffensive green plum become an agent of bloody conflict. It seems that after the fort had been taken by the victorious attacking army Kelly went home without knowing the identity of the sharpshooter who had come near ruining an extremely useful eye. The next day the same crowd of urchins went swimming in the river. They had come out of the water to dry in the sun before dressing when in the course of unguarded conversation Kelly ascertained that Earl had been the marksman responsible for his sore optic. He forthwith made a comment reflecting on the character and social standing of the other. Earl countered that any fellow who didn't want his eye hurt should know enough to keep it away from peepholes.

Oh, he should, huh? Wham! Smack! Pow!

The two boys, wearing only looks of defiant scorn, began dancing in front of each other. Their arms swung windmill fashion or shot forward like miniature battering rams. Bare knuckles sank into yielding stomachs to the accompaniment of abysmal grunts, landed on crimson-smeared noses and bored into tender eyes. The belligerents soon glistened with sweat which, mingling with blood from sundry cuts and scratches, trickled down smarting skins. A circle of nude youngsters, yelling encouragement and appeals to give 'im another, provided a grotesque

(Continued on Page 145)

LAWYERS SEEM TO LIKE THIS BUSINESS

Kelly Shannon is not the only man who started out on a legal career and then switched over into some branch of the oil and gas industry. There's Melvin Alvan Traylor, director of the Standard Oil Co. of Indiana, for instance, whose career offers some striking parallels to that of Mr. Shannon. Going to Texas while young, he was admitted to the bar in Hillsboro, served as city clerk there and then was assistant county attorney of Hill County. With that he abandoned both the law and politics and entered banking. He has retained important banking affiliations along with his place on the Standard of Indiana directorate.

O. K. Shannon

William R. Boyd, Jr., executive vice president of the American Petroleum Institute, is another who was admitted to the bar in Texas, after which he practiced law in Teague, that state. He was elected mayor and he served as secretary to Congressman Scott Field of Texas. He gave important service in the interests of the Federal Reserve Bank Act and the League to Enforce Peace. He joined the staff of the A.P.I. in 1920, since when he has devoted his entire time to the oil industry.

Walle Merritt, in charge of all land work for the Shell Petroleum Corp., comes to mind in this connection. Mr. Merritt graduated in law and received an appointment to lecture on business law in the Harvard graduate school of business administration and also an appointment to teach in the University of Michigan law school. On account of poor health he declined both appointments and went to West Texas, where he got into oil and stayed in it. Others might be named.

When the apparent propensity of lawyers to migrate into oil and gas was mentioned to Mr. Shannon his laconic comment was, "maybe that's what is wrong with the industry."

Origin and Refining of Sulphur Oils

Objectionable Compounds Are Formed During Heating. Paraffin Oils Are Not Inert as Once Thought

By Walter Friedmann*

EXPLAINS SULPHUR REACTIONS

In the following article Dr. Walter Friedmann presents the results of a detailed original investigation of the reactions of sulphur and pure hydrocarbons under various temperatures and pressures. The work particularly emphasizes the freeness with which sulphur itself enters into chemical composition with those hydrocarbons contained in petroleum. Doctor Friedmann disproves the theory that paraffin hydrocarbons are inert in the presence of sulphur by citing the vigorous reaction which takes place when solid paraffin and sulphur are heated together, with the formation of hydrogen sulphide. Using this as an example he outlines similar reactions for the liquid homologs providing the oil is held under pressure and heated above its distilling point.

Doctor Friedmann is recognized as an authority on the chemistry of sulphur and hydrocarbon reactions and this work is a valuable contribution to the limited published material available on the subject. His work has a direct application in present day refining, especially to manufacturers of asphalt, and stresses the practicability of this type of research. Doctor Friedmann's home is in Berlin, Germany.

By investigating the course of the reactions occurring between sulphur and the paraffin hydrocarbons, naphthenes, olefins, terpenes, diolefins and aromatic hydrocarbons under suitable experimental conditions, with chemically pure individual hydrocarbons, it should be possible to draw conclusions from the results of the experiments about the sulphur compounds in such mixtures as crude petroleum, shale oil, tar and asphalt.

Experiments were started at an earlier date by the author with this thought in mind. In making them, the difficulty of providing pure materials and the lack of information in the literature that was related to the problem proved to be handicaps. Scarcely more than two or three references were to be found. One concerning the action of sulphur on naphthenes originated from Markovnikov[1] (the sulphur compounds formed were not made a part of the investigation). The other paper was contributed by Engler and Spanier.[2] By heating hexane and sulphur under pressure at 400° C. (752° F.), Spanier thought that he had made an aromatic derivative but was unable to identify it.

How untouched the field was — and there has been no great change in the meantime—is shown by the fact that even in 1926 Brooks[3] emphasized the necessity of investigating the reactions between hydrocarbons and sulphur. He thought it surprising that although the process of vulcanization of rubber calls for a study of the action of sulphur on olefins, the work has remained undone. Only recently Kurt H. Meyer[4] had the difficulty in his investigation of vulcanization of comparing the chemical reactions with any others already studied, except the reaction between ethylene and sulphur monochloride, which yields the well-known war gas "yellow cross" (Yperit). Under these circumstances a summary of earlier researches with supplementary information, such as analytical data and critical discussion, seems to be appropriate. This will at the same time furnish comparative data.

*Translated by W. F. Faragher from Erdoel und Teer (Petroleum and Tar), Volume 6, Pages 342-4 and 359-63 (1930).
[1]Markovnikov, Ber. 20, 1,851 (1887).
[2]Engler and Spanier, Diss. Karlsruhe (1910).
[3]Brooks, Ind. Eng. Chem. 18, 518 (1926).
[4]Kurt, H. Meyer; Ber. 61, 1,939 (1928).

Fallacy of Opinion Shown

How incorrect is the opinion, long held, that the paraffin hydrocarbons are inert toward sulphur is proved by the vigorous reaction that takes place between petrolatum or solid paraffin and sulphur upon heating. The reaction can be used as a convenient method of preparing hydrogen sulphide. The liquid homologs behave similarly if they are heated under pressure above their boiling points. Large quantities of hydrogen sulphide are split off and even at temperatures between 250° and 300° C. (482° and 572° F.) the reaction proceeds so far that pronounced coking of the hydrocarbons takes place. The assumption that paraffin hydrocarbons are converted into olefins by sulphur at temperatures below the cracking range is supported more by tradition than by fact. If cracking temperatures are avoided, this assumption is incorrect. Among the reaction products other than gases, n-pentane, n-hexane and n-octane, no unsaturated hydrocarbons were found under the conditions of experiment[5] nor were the mercaptans corresponding to the starting materials detected. The products of the reaction have an unbearable odor which arises principally from the lower mercaptans dissolved in them and in the gas. By the use of α-carbon, methyl mercaptan could be adsorbed from the gas, but on account of complaints from all sides the more thorough investigation of the volatile sulphur compounds was abandoned. The appearance of methyl mercaptan is understandable from the extensive decomposition of the molecule which results in marked coking (up to 20 per cent of the original substance). The designation "coke" requires, however, an explanation. an intimate mixture of carbon and sulphur is produced, from which the sulphur can be extracted only in part by solvents. If the residue after such an extraction is heated to 300°, some sulphur is liberated but the main portion is not extractable in this way.

This observation is supported more or less by that made by Ciusa[6] on "thiophenegraphite," which he described as solid carbon sulphide and which behaves similarly to the compounds of carbon and sulphur obtained by Wibaut.[7] Whether or not the existence of these solid carbon sulphides is admitted, it is certain that paraffin hydrocarbons produce decomposition products distinct from those yielded by the olefins and naphthenes, which form asphalt, as we shall see later.

Neither Separated Nor Identified

Liquid compounds of sulphur could neither be separated from the products of reaction of pentane or hexane nor identified. Starting with n-octane, it was likewise impossible to obtain n-octyl mercaptan or an isomeric mercaptan; nevertheless, the thiophene derivative $C_8H_{12}S$ and the thiophthene derivative $C_8H_8S_2$(*) were obtained. The dibromo substitution compound of the thiophene derivative proved that two hydrogen positions in the nucleus are unoccupied by alkyl radicals, namely, those in the $\alpha\,\alpha_1$-positions, since a soluble and insoluble compound of mercury is formed, the characteristic behavior of $\beta\beta_1$-dialkylthiophenes, according to Steinkopf.[8]

From a consideration of the course of the reaction assumed in the following structural formulas, it appears to be more correct to consider the thiophene derivative as methylisopropyl thiophene rather than as the diethyl or methylpropyl thiophene formerly accepted.

On account of lack of material, the

(Continued on Page 106)

[5]A temperature of 280° C. (536° F.) was the upper limit. In some experiments the pressure in the tubes was released after 12 or 24 hours and they were then heated again. First of all, sulphur was only added in quantities insufficient to transform the whole of the hydrocarbons used into any compound of sulphur.

[6]Ciusa, Gazz. Chim. Ital. 55, 385 (1925).
[7]Wibaut, Z. angew. Chem. 40, 1,136 (1927).
[8]Friedmann, Ber. 49, 1,344 (1916).
[9]Steinkopt, Ann. 403, 50 (1913).

TABLE SHOWING COMPOUNDS FORMED BY REACTION OF SULPHUR WITH VARIOUS HYDROCARBONS

Group		Formula	Sp. Gr.	Boiling point C	Boiling point F		1 Hexylene C	1 Hexylene H	1 Hexylene S	2 Octylene C	2 Octylene H	2 Octylene S	3 Octylene a C	3 Octylene a H	3 Octylene a S	3 Octylene b C	3 Octylene b H	3 Octylene b S	4 Hexadecylene C	4 Hexadecylene H	4 Hexadecylene S
I	1	$C_6H_{12}S$	D_{20} 0.863	V_{10} 40°		found	62.24	10 54	27.22												
						calcd.	62 07	10.33	27.60												
	*2	$C_6H_{10}S$	D_{21} 0.9386	179-180°		found				68 57	8.57	22 34									
						calcd.				68.51	8 98	22 80									
	3	$C_6H_{16}S$	D_{15} 0.886	V_{12} 70-71°		found										68.69	10 59	20.81			
						calcd.										66 67	11 11	22 22			
	4	$C_{16}H_{32}S$	D_{22} 0.9405	V_{12} 188-190°		found													75.77	12.05	12.13
						calcd.													75.00	12 50	12.50
II	1	$(C_6H_{12})_2S$	D_{20} 0.882	V_{10} 112-113°		found	72 00	12.12	15.89												
						calcd.	72 00	12.00	16 00												
	†2	$C_6H_8S_2$		§116-117°		found				57.30	4 66	37.55									
						calcd.				57.14	4.76	38.10									
	2	$(C_6H_{14})_2S$	D_{20} 0 925	V_{11} 160-162°		found				77 03	11.26	12.54									
						calcd.				76 19	11 11	12.70									
	3	$(C_6H_{16})_2S$	D_{15} 0.903	V_{12} 163°		found										75.06	12.95	12.30			
						calcd.										75 0	12.71	12.29			
	4	$(C_{16}H_{32})_2S$	decomposes, with H_2S splitting off																		
		Decomposition prod.—	D_{15} 0 927	220-230°																	
III	1	$C_{12}H_{24}S_2$	D_{20} 0.907	V_{10} 128°		found	68.30	10 84	20.86												
						calcd.	68 75	10 82	20.39												
	2	$C_{24}H_{48}S_2$	D_{20} 0.966	V_9 186-188°		found				73.62	10.62	16.75									
						calcd.				73.84	9.74	16.42									
	3	$C_{24}H_{48}S_2$	D_{15} 0 982	V_{12} 202°		found										73.34	11.03	15.90			
						calcd.										73.10	10.65	16.25			
IV	1	$C_{24}H_{46}S_2$		V_{10} 142°		found	64.91	10 29	24.80												
						calcd.	64.60	10.40	25.00												
V	1	$(C_{12}H_{22}S)x$, hexylene asphalt, hard.				found	77.34	5 11	17.01												
						calcd.	77.42	5 36	17.22												
	2	$(C_{24}H_{46}S_2)x$, caprylene asphalt, rather hard.				found				76.4	7.3	16 6									
						calcd.				75.4	7.8	16.8									
	3	$[(C_8H_8)_2S_2]x$, octylene asphalt, hard.				found										76.92	6.64	16 86			
						calcd.										76 59	6 38	17.03			
	4	Hexadecylene asphalt, soft $C_{32}H_{64}S_2$+ $C_{32}H_{62}S_2$, mean value.				found													78.82	4.75	16.43
						calcd.													78.77	4.93	16 30

*Thiophene derivatives also obtained from n-octane.
†Thiophthene derivatives which were also obtained from n-octane.
‡V_{10}, V_{15}, etc., designate vacuum distillation at absolute pressures of 10,, 15, etc., millimeters of mercury.
§A paper by Friedmann (Ber. 16, 1,344-52 (1916) gives this value as a melting point W.F.F.

Engineers Conquer Kettleman Hills

An Area Long Suspected of Containing Oil Has Been Finally Opened by Improved Mechanical Equipment and Engineering Skill

By L. G. E. Bignell
Petroleum Engineering Editor

At this time, and for some time past, the Kettleman Hills district in California has been creating much discussion in the petroleum industry. One of the notable things about this field is the very high gravity of the oil and the high percentage of gasoline extracted from the gas produced with the oil.

In a paper presented before the fall meeting of the American Institute of Metallurgical Engineers in Tulsa in October, T. E. Swigart gives a table showing the estimated output of the wells at that time and the total new gasoline supply from them in which he sums up the estimated total yield of gasoline from gas per barrel of crude production, as 1.61 bbls. for the light oil production, and 0.76 bbl. for the heavy production, or an average of 1.02 bbls. for the field.

It will be noted that this estimate is expressed in terms of barrels of gasoline per barrel of oil produced, and in making this estimate the gasoline content of the gas was assumed to be 1 gallon per 1,000 feet, and in many wells it has been found to be much higher than that.

It has been estimated that the total demand for gasoline in California for 1931 will be approximately 250,000 bbls. per day. The estimate made by Mr. Swigart indicated that Kettleman could produce 92,200 bbls. per day, or 37 per cent of the total amount required and the adoption of a drilling program under competitive methods of operation it seems reasonable to assume that Kettleman Hills district could double its output within one year.

The significant thing about this Kettleman Hills production is that the 90,000 bbls. per day potential production, as of October, 1930, of "light" and "black" oil would be equivalent to 225,000 bbls. per day of average California crude of refinable grade, or to 37 per cent of California's present crude requirements.

Brief History of the Field

The above facts have been known to operators in California and by them told to others for some time and it therefore seems rather remarkable that such a highly prolific field should have required nearly 28 years of intermittent drilling to discover.

The field is located about 21 miles in a southeasterly direction from Coalinga, Calif., which town is approximately 160 miles southeast of San Francisco and 185 miles northwest of Los Angeles. The Kettleman Hills are about 30 miles long and extend in a southeasterly direction and form the western margin of the San Joaquin Valley. The northern limits of the Kettleman Hills are only about 10 miles from Coalinga, and the field is made up of three distinct structures, the North, Middle and South Domes.

It is estimated that the North Dome is about 12 miles long and 2 miles in width, while the Middle and South Domes are each probably about 6 miles long and 2 miles wide. Between the ends of each dome there is a space of about 1½ miles. The Kettleman Hills proper are about 5 miles wide and consist of great masses of sand with a top elevation of about 1,250 feet above sea level. The country is arid and to the visitor at first presents anything but a pleasant appearance, but like many other areas of the West of this general type, men seem to be fascinated by it and in time come to really prefer living there to more cultivated areas.

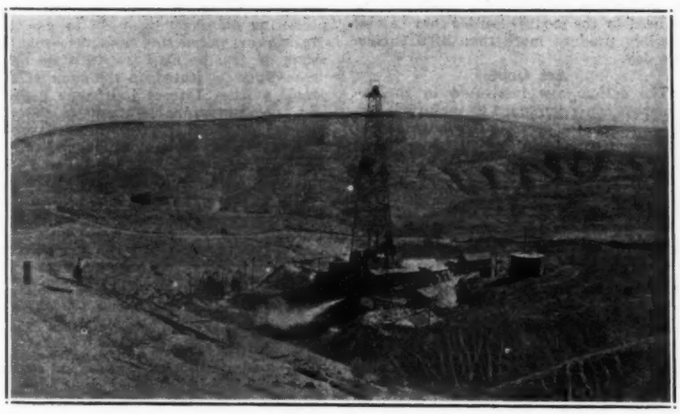
The general type of country has long caused oil men in California and visitors who made a trip into the Kettleman Hills region to suspect the presence of oil there, perhaps because it is rather safe to assume that nature has never made anything that does not have some practical use and Kettleman Hills certainly had little appeal for either its scenic beauty or agricultural possibilities.

First Prospecting in 1900

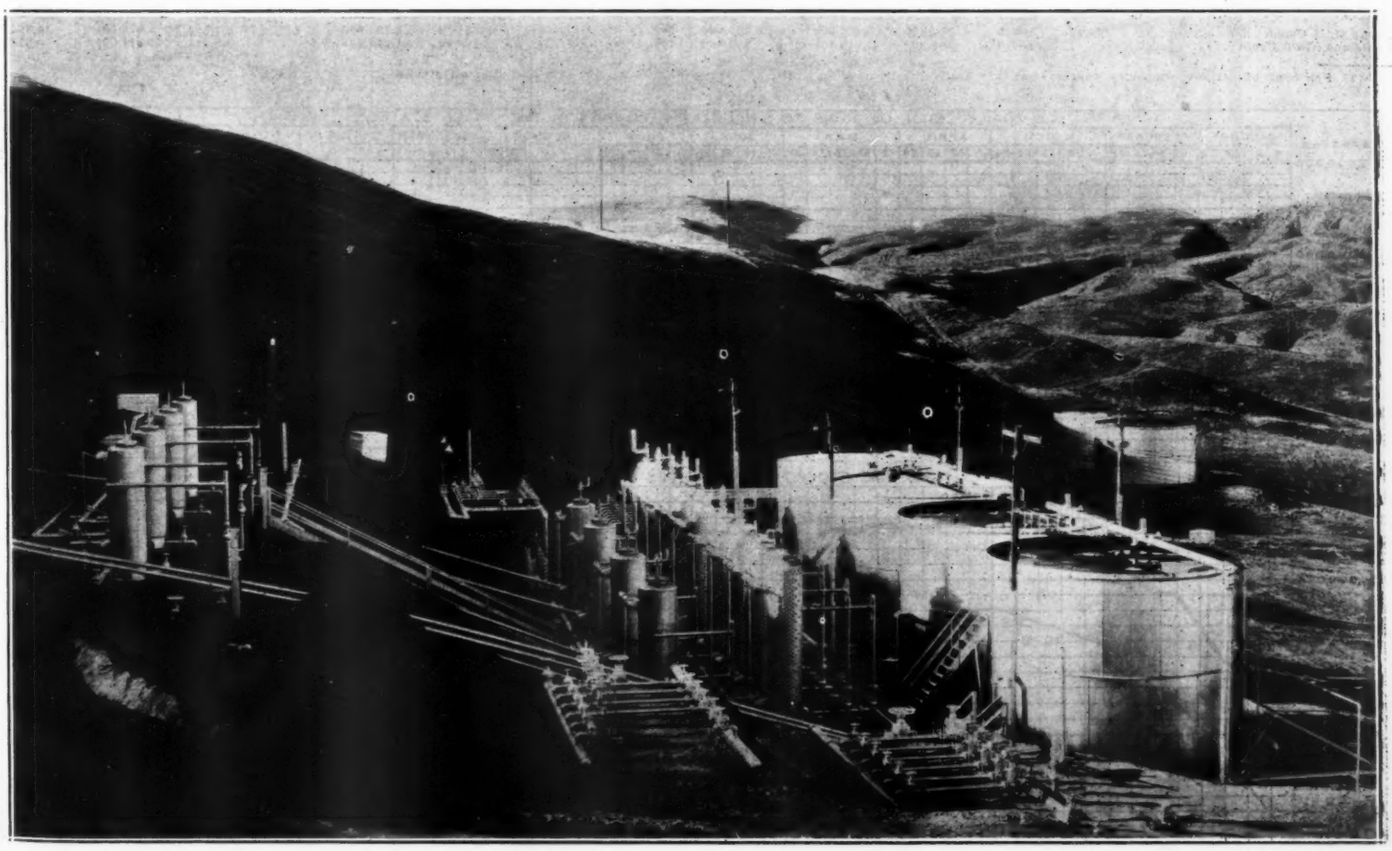
Geologists in California in the early days of oil development there assumed that asphalt seeps indicated possible old and depleted oil pools and therefore were not likely places in which to find oil by drilling. Many places later proven to contain commercial pools were passed up in the early days.

Coalinga Pool is located below oil seeps and while operators and wildcatters thought Kettleman Hills looked like "oil country" it was not until many years

(Continued on Page 71)



Associated Oil Co.'s No. 1 Whepley well in the Kettleman Hills Field, California, located in Section 35-21-17.



Typical Standard Oil Co. of California oil and gas separator and lease tank battery at high pressure well in the Kettleman Hills Field, California. Vertical risers in background are discharge pipes from this battery for relief of excess gas from well.

Text of California Gas Law Decision

Ruling of State Supreme Court of Interest to Oil and Gas Industry Throughout the Country. Establishes Precedent

LOS ANGELES, Calif., Dec. 13.—The complete text of the decision by the State Supreme Court upholding the California gas conservation law in every particular follows:

Thompson, J.—This is an original prohibition proceeding. The petitioners seek to prevent the respondent court from enforcing a preliminary injunction and order modifying the same and also to check any further order or proceeding against them in an action pending in the respondent court entitled People of the State of California on relation of Fred G. Stevenot, Director of Natural Resources of the State of California vs. Associated Oil Co. and others, which action was brought for the purpose of enjoining all of the defendants therein named from unreasonably wasting natural gas from their wells in the Santa Fe Springs oil field.

On March 19, 1930, after hearing the parties to the action, the court granted a temporary injunction limiting and defining the amount of gas which the defendants would be allowed to permit to escape into the air from their wells in the field mentioned. On March 28, 1930, the court made another order somewhat relaxing the terms of the injunction pendente lite.

It is asserted by petitioners that they have been irreparably injured and damket for a large part thereof and that if aged by attempting to curtail the production of natural gas; that there is no marthey are to be allowed as they claim it is their right, to employ the gas as a lifting power to raise the oil from below the surface they must of necessity permit a portion thereof to escape into the air; that prior to the temporary injunction they were producing 19,554 bbls. of oil per day but that operating most efficiently under the amount of gas allowed to be used by the modified order they cannot possibly produce more than 10,211 bbls. per day.

Act Quoted

The action was instituted in the respondent court pursuant to the provisions of "an act to protect the natural resources of petroleum and gas from waste and destruction, etc.", (Stats. 1929, p. 923) the sections of which pertinent at this point in our discussion read as follows:

Section 8b. The unreasonable waste of natural gas by the act, omission, sufferance or insistence of the lessor, lessee or operator of any land containing oil or gas or both, whether before or after the removal of gasoline from such natural gas, is hereby declared to be opposed to the public interest and is hereby prohibited and declared to be unlawful. The blowing, release or escape of natural gas into the air shall be prima facie evidence of unreasonable waste.

(Section 14b.) Whenever it appears to the director of the department of natural resources that the owners, lessors, lessees or operators of any well or wells producing oil and gas or oil or gas are causing or permitting an unreasonable waste of gas, he may institute, or have proceedings instituted, in the name of the people of the State of California, to enjoin such unreasonable waste of gas regardless of whether proceedings have or have not been instituted under Section 8 (a section authorizing the oil and gas supervisor to issue certain orders) hereof, and regardless of whether an order has or has not been made therein.

Such proceedings shall be instituted in the superior court for the county in which the well or wells from which the unreasonable waste of gas is occurring or any thereof are instituted. The owners, lessors, lessees or operators causing or permitting an unreasonable waste of gas in the same oil or gas field, although their properties and interests may be separately owned and their unreasonable waste separate and distinct, may be made parties to said action.

In such suits no restraining order shall be issued ex parte, but otherwise the procedure shall be governed by the provisions of Chapter 3, Title 7, Part 2 of the Code of Civil Procedure of the State of California (a chapter relating to injunctions) and no temporary or permanent injunction issued in such proceedings shall be refused or dissolved or stayed pending appeal upon the giving of any bond or undertaking, or otherwise.

Petitioners' Arguments

The arguments of the petitioners may

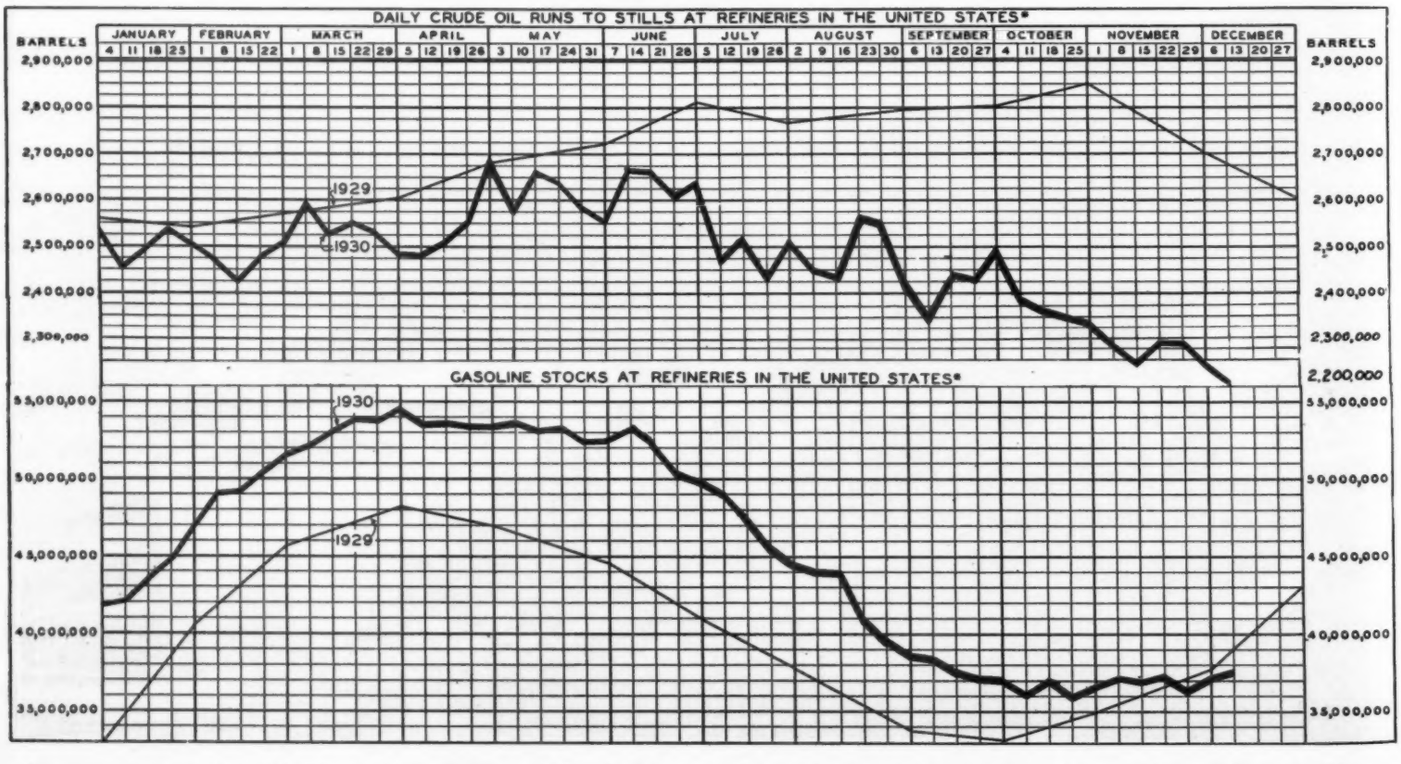
(Continued on Page 108)

AMERICAN PETROLEUM INSTITUTE WEEKLY REFINERY STATISTICS

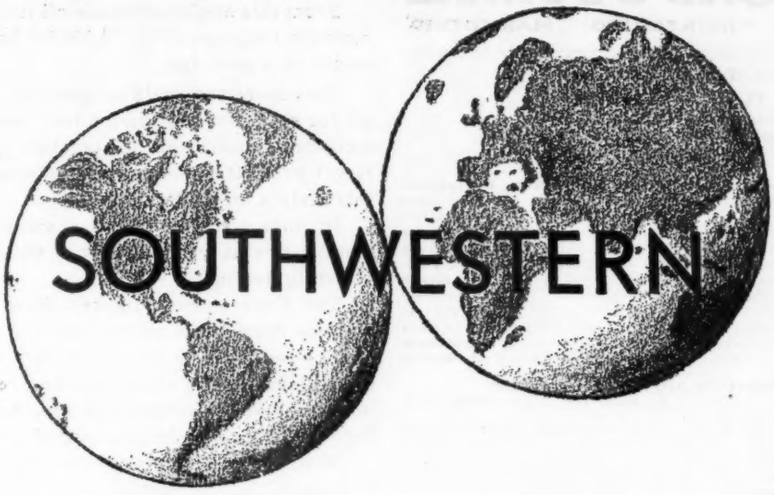
The weekly report made to the American Petroleum Institute on refinery statistics—crude runs to stills, gasoline stocks and gas and fuel oil stocks in barrels—for the week ending December 13.

	Week ending December 13				Week Ending December 6				Week ending January 4			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
East Coast	100.0	441,700	5,263,000	10,618,000	100.0	446,000	5,427,000	10,852,000	100.0	454,857	5,998,000	7,431,000
Appalachian	93.8	71,000	851,000	951,000	93.8	82,600	829,000	1,035,000	91.6	75,571	1,282,000	805,000
Indiana, Illinois, Kentucky	97.5	274,300	4,232,000	3,747,000	97.5	252,300	4,193,000	3,868,000	98.6	289,300	5,483,000	3,505,000
Oklahoma, Kansas, Missouri	89.4	254,300	2,523,000	4,494,000	89.4	237,400	2,413,000	4,538,000	87.7	263,428	3,604,000	3,277,000
Texas	91.9	508,300	6,763,000	10,832,000	91.9	463,800	6,896,000	10,775,000	90.7	538,857	6,590,000	13,757,000
Louisiana and Arkansas	98.3	149,400	1,269,000	2,197,000	98.3	145,900	1,201,000	2,224,000	96.8	160,000	2,161,000	4,499,000
Rocky Mountain	93.1	40,800	1,581,000	1,001,000	93.1	39,700	1,548,000	1,026,000	93.3	41,614	2,273,000	973,000
California	98.8	545,300	15,198,000	104,041,000	98.8	519,500	15,235,000	104,546,000	99.3	642,857	14,826,000	109,770,000
Total United States	95.7	2,285,100	37,680,000	137,881,000	95.7	2,187,300	37,742,000	138,864,000	95.4	2,468,285	42,217,000	144,017,000
Texas Gulf Coast	100.0	382,600	5,424,000	8,190,000	100.0	353,300	5,663,000	8,101,000	100.0	429,585	5,579,000	10,792,000
Louisiana Gulf Coast	100.0	109,900	1,014,000	1,274,000	100.0	108,700	935,000	1,253,000	100 0	108,514	1,877,000	3,818,000

(1) Per cent of refinery capacity represented. (2) Daily crude runs to stills. (3) Gasoline stocks. (4) Gas and fuel oil stocks.

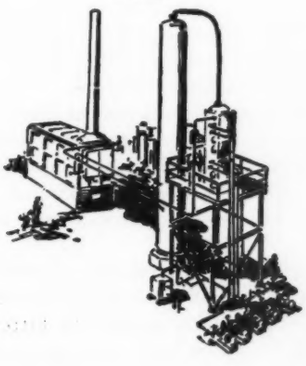


*Data for 1930 based on weekly reports of the American Petroleum Institute. Data for 1929 derived from monthly reports of the Bureau of Mines, Department of Commerce. Figures for last week not shown in graph but are included in above tables.

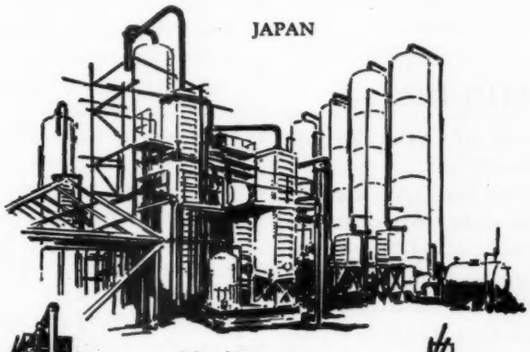


Units Now Under Construction ALL OVER THE WORLD

SPAIN

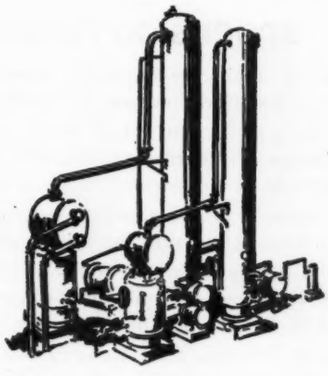


JAPAN



Isle of Formosa

POLAND



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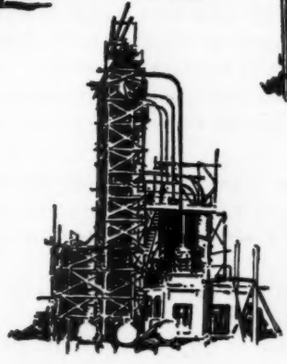
FRANCE



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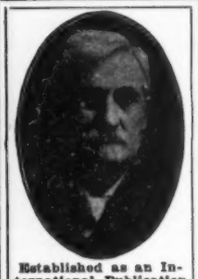

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STOCKS GO DOWN—AND UP

Crude oil stocks are 26,000,000 barrels less than a year ago, but as potential gasoline they are 38,000,000 barrels larger.

According to the Bureau of Mines report for November 1 crude oil in storage amounted to 518,843,000 barrels compared with 545,186,000 barrels on November 1, 1929, a decrease of 26,343,000 barrels.

As a measure of the general effort to keep crude oil supply in line with demand the question arises whether this is sufficient.

As an industry we are all too wont to consider a barrel of crude as simply 42 gallons of crude oil disregarding the constantly changing value of the oil from the standpoint of refinery operations.

After all, it is this latter basis rather than how much liquid there is in storage tanks which really determines the volume of our inventory of raw material.

A year ago, in October, the average recovery of gasoline per barrel of crude was 44.9 per cent. In the same month, this year, for the first time it passed 50 per cent, with the average recovery put at 50.1 per cent.

This was an increase of 5.2 per cent in a year, the largest gain in refinery yield in the history of the industry.

Consider what this means in relation to the crude oil inventory just mentioned.

A 44.9 per cent yield for the 545,186,000 barrels on November 1, 1929, meant that this inventory represented 244,788,000 barrels of gasoline, based on the gasoline yield of that time.

Today, with 26,343,000 bbls. less crude oil in storage, consider what a 50.1 per cent yield means.

Today's 50.1 per cent recovery from the 518,843,000 barrels of crude oil in storage November 1, 1930, means that the crude oil inventory on that date represents 259,940,000 barrels of gasoline.

Thus, although our actual volume of crude oil in storage has decreased more than 26,000,000 barrels, the gasoline value of our crude oil stocks has increased 15,152,000 barrels.

Another way of visualizing the same thing is to consider the gasoline inventory of this year, 259,940,000 barrels, on the basis of the gasoline recovery of a year ago.

Making this comparison we find that the gasoline inventory of this year, based on the recovery percentage of last year, would have required 583,000,000 barrels of crude oil.

From this angle our crude oil inventory on November 1 last was, comparatively speaking, 38,000,000 barrels greater than the crude oil stocks of a year ago.

This increased yield of gasoline, meaning necessarily less crude oil for each barrel of motor fuel consumed, has been due mainly to increased production of cracked gasoline, natural gasoline and larger production of high-grade crude oil, although this latter was relatively a minor factor.

In this connection the accumulated figures for the first ten months of this year, compared with the same period of last year, are enlightening.

The Government's figures show the production of straightrun gasoline from crude oil decreased in this period 12,463,000 barrels.

This was due to the action of refiners curtailing crude oil run to stills but at the same time they expanded their cracking operations so that the production of cracked gasoline totaled 20,435,000 barrels more than the like period of a year ago.

During the same ten months the production of natural gasoline increased 2,939,000 barrels.

In other words, while the production of straightrun gasoline decreased about 12,500,000 barrels the increase in production of cracked gasoline was 8,000,000 barrels more than the decline in straightrun and on top of this was added nearly 3,000,000 barrels of natural gasoline.

So that actually the sources of motor fuel other than crude oil almost doubled the reduction in straightrun gasoline production.

From the marketing angle the meaning of this situation is readily apparent when it is considered that while the increased shipments of gasoline from the refineries in the first ten months of this year over the same period last year was 15,867,000 barrels the increase in the production of cracked gasoline alone—only a few years ago an insignificant factor in the total production of motor fuel—exceeded the increase in demand by nearly 5,000,000 barrels.

Some may suggest as a remedy the curtailment of cracking operations so as to use more crude oil. Others may say the same of the production of natural gasoline as a by-product of crude oil.

The trend, however, has been to secure the maximum recovery obtainable, both as a measure of conservation and as a matter of operating efficiency.

In the cracking end the demand for the heavier fractions as fuel has been as unsatisfactory as for gasoline in most refining areas. The large expansion of natural gas facilities and the bitter competition of low priced coal has limited that field more and more.

These are the facts in the present situation as set forth in the latest available government statistics on the petroleum industry.

Their meaning is perfecly plain, as has been the trend up to the present point.

Time and time again attention has been directed to the steady and indeed startling increase in gasoline production from sources other than crude oil.

Producers have been warned that less and less crude oil was being needed to produce increased quantities of gasoline.

Refiners have been warned that the increased efficiency in the production of motor fuel would keep abreast of the normal increase in demand without basic expansion of operations.

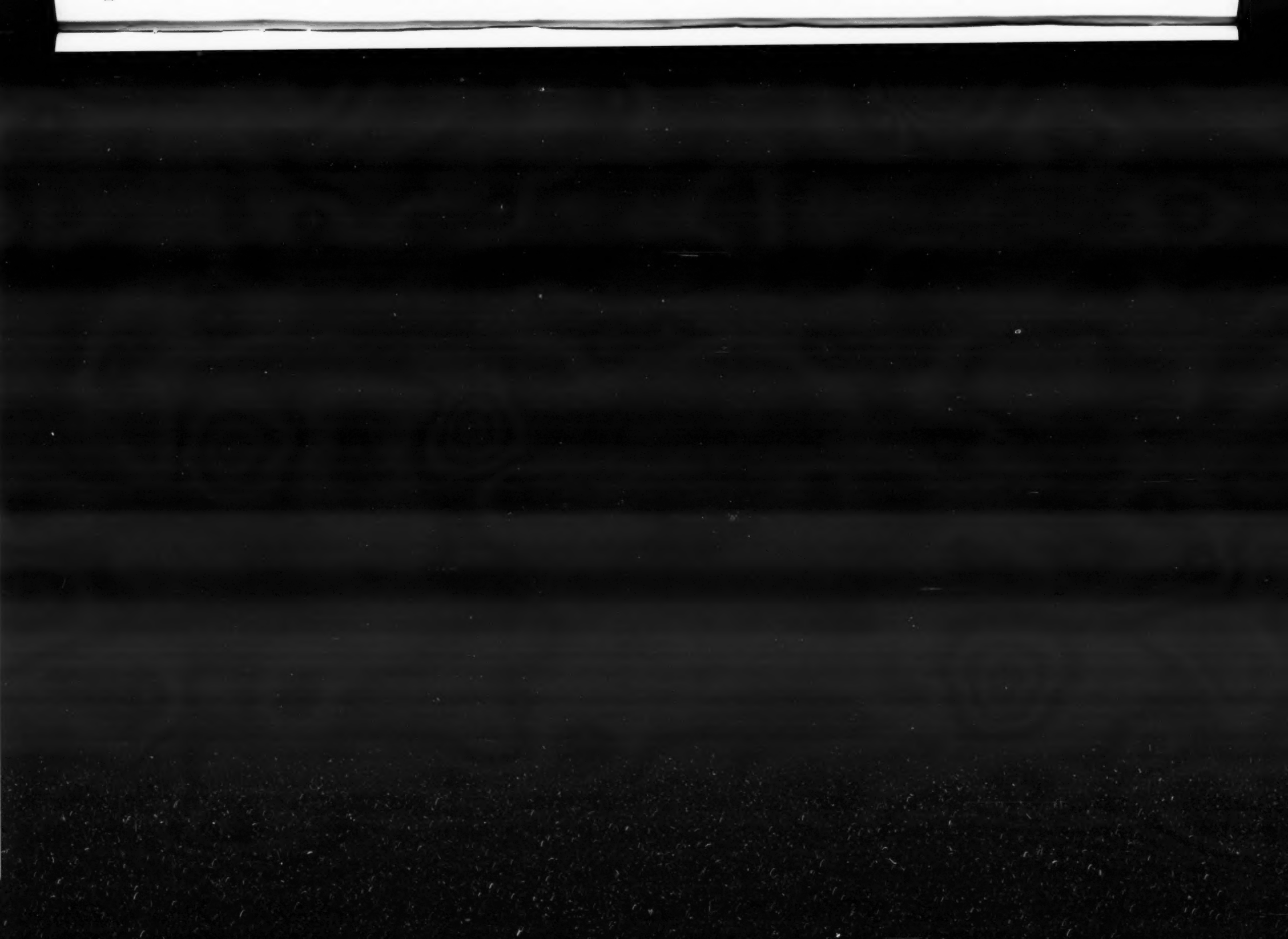
Yet there will be surprise that, as shown, the increase in the production of cracked gasoline alone has outrun the increase in demand by nearly 5,000,000 barrels.

It may be argued that there has not been a normal increase in demand this year but the difference is not sufficient to affect the fundamental fact.

Each year sees a material increase in the yield of gasoline per barrel of crude. A 60 per cent recovery was exceeded in three refining areas in October.

If there is one thing that stands out in the situation today it is the absolute necessity of taking the factors just set out into consideration in refinery operations this winter.

Whether they are so considered or not they will be the determining elements in the making or marring of next summer's business.



Christmas Greetings

The S. R. Dresser Manufacturing Co.

Perfect Flexible Method for Treating

Plant of Large Capacity at Union Refinery Designed to Handle Varying Grades of Gasoline and Naphtha

By C. O. Willson

The Union Oil Co. has perfected an economical and flexible method of treating all grades of gasoline and special naphthas refined from California crude oil and charging stocks at its Los Angeles refinery.

The method provides for a continuous operation in which the gasoline is treated with sulphuric acid followed by a contact treatment with clay. The unit has greatly reduced the quantity of acid required and has given a 30 color stable product meeting requirements of the domestic and export trade.

During the course of a year the Union's Los Angeles refinery operates with several grades of California crude oils. In the skimming operation gasolines are obtained which are not uniform in the chemical treatment required to secure finished products. Somewhat the same situation is found in refining cracked gasolines from various grades of cracking stock. The treating plant takes care of this problem with flexible features which enable those in charge to alter the operation to meet the varying requirements. Improvements have been made in the equipment from time to time by the Union's development department so that now the operation is largely automatic, the services of only one man per shift being required. The plant has a capacity of 20,000 bbls. daily.

Operation of Plant

The operation of the treating plant starts with a laboratory analysis of the gasoline stock which is to be treated. This analysis determines the quantity and strength of acid required. This will vary from a fraction of a pound of acid per barrel to as high as 3 or 4 pounds per barrel. The aim is to reduce the quantity of acid used to a minimum. This is important not only from the saving in acid but also has direct bearing in the characteristics of the finished gasoline. As is generally known reducing the quantity of acid used in treating tends to retain the hydrocarbon properties in the gasoline which are of greatest value in giving the motor fuel a high antiknock rating. Many California gasolines are naturally high in antiknock rating and it is the aim of refiners to conduct their treating operation so that this characteristic is retained.

With the quantity of acid determined, other phases of the operation are adjusted to this requirement. The untreated stock from storage is charged to a baffled mixing coil as shown in the accompanying flow chart. The acid is introduced into the charging line and is thoroughly mixed with the gasoline in passing through the coil. A motor driven centrifugal pump is used to pump the gasoline.

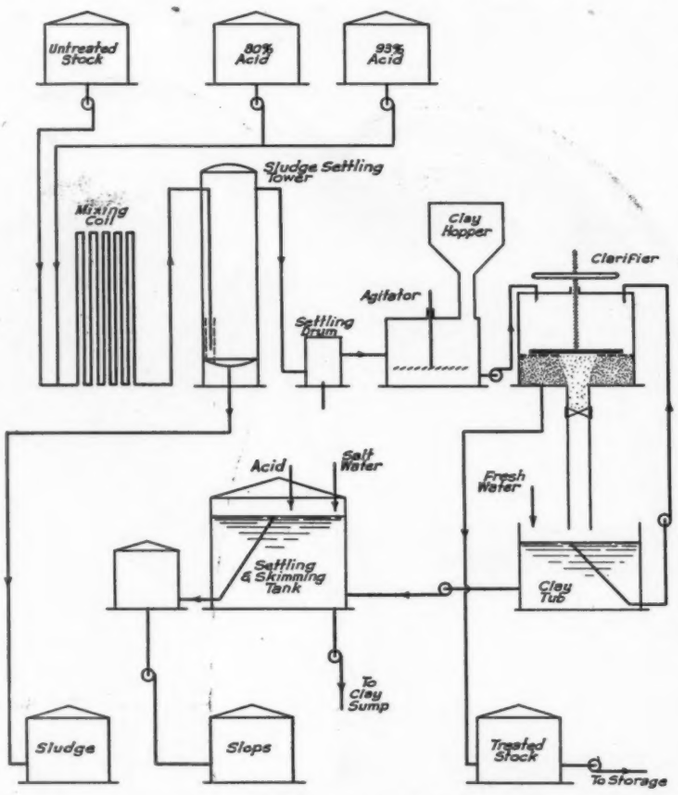
The treated stock is discharged near the base of a packed sludge settling tower. In passing from the base of the tower to the top, a large part of the sludge acid settles out of the gasoline and is removed to storage from the bottom of the tower. The company operates a plant for the recovery of acid from this sludge.

From the primary settling tower, the stock passes to a second settling drum where more of the acid sludge settles out. The gasoline is practically sludge free when it leaves this settling drum and passes to an agitator. Clay is automatically introduced in this agitator being mixed with the gasoline by means of a stirring device which assures the needed contact between the clay and the stock. A Death Valley clay of about 200 mesh is used. The quantity depends largely on the amount of acid used. This contact serves to remove any trace of acid remaining in the gasoline and removes other impurities which are related to the problem of securing stable color.

The clay and gasoline mixture then pass to what is termed a "clarifier" where the finished gasoline is separated from the clay. This Hardinge clarifier consists of a bed of fine gravel operated under pressure and was especially designed to meet the requirements at the Union plant.

The finished gasoline passes direct to the storage tank. The sand and clay mixture is gradually removed from the top of the filter bed through the rotary action of paddles. This mixture drops into a clay tub where fresh water is introduced.

From the clay tub it is pumped into a settling and skimming tank. The settling operation is aided by the introduction of acid and salt water. Slops which contain small quantities of gasoline are removed from the top of the tank. The gasoline fraction is later recovered from the slops. The clay is removed to a slump from the bottom of the tank.



Flow chart of gasoline treating plant of the Union Oil Co.

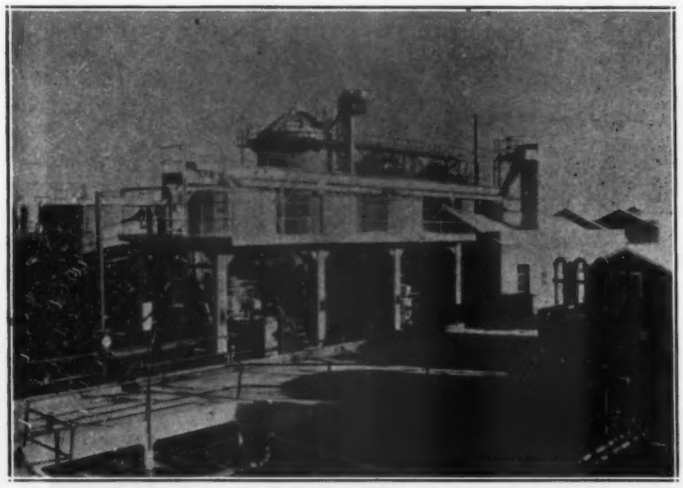
Use of Waste Heat

Another unusual feature of the Union's operation at the Los Angeles plant is the use of waste heat from the cracking operation in rerunning pressure distillate.

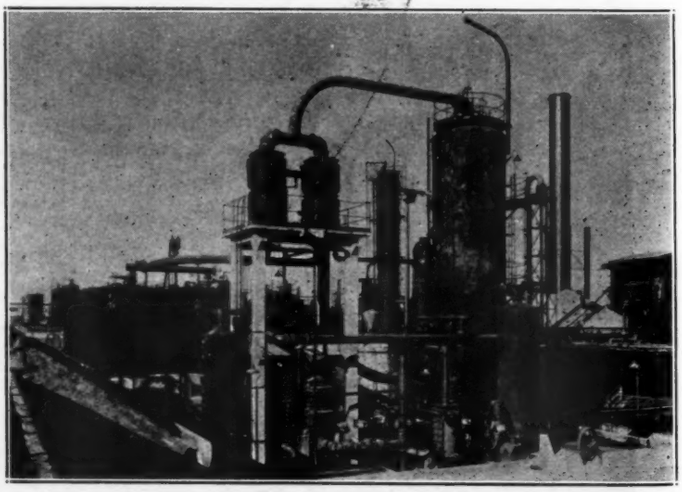
Several units of the Cross cracking process are in operation at the Los Angeles refinery. For the most part these units are the conventional Cross type both in design and method of operation. However, due to a favorable market for the product the company does not recycle the gas oil taken from the base of the fractionating column. The usual practice is to recycle this stock with the view of securing the maximum yields of gasoline.

In the Union operation this recycle stock is taken to storage and sold as a separate product. This stock leaves the fractionating column at a temperature of approximately 600° F. and having no use for this large volume of hot liquid for heat exchange in the operation of the cracking units the management decided to utilize the heat in rerunning the pressure distillate from the cracking operation.

The recycle stock amounts to approximately 30 per cent of the charge to the stills. The stock from the column is taken direct to the rerun unit shown in the accompanying picture. Through interchange of heat in a series of closed heat exchangers the raw pressure distillate is preheated to the temperature necessary for the vaporization of the gasoline fractions. The available heat in the partial condensers in the vapor line is also used in preheating the distillate.



View of the gasoline treating plant at the Los Angeles, Calif., refinery of the Union Oil Co.



Unit for rerunning pressure distillate at the Los Angeles, Calif., plant of the Union Oil Co.

PENBERTHY PRODUCTS

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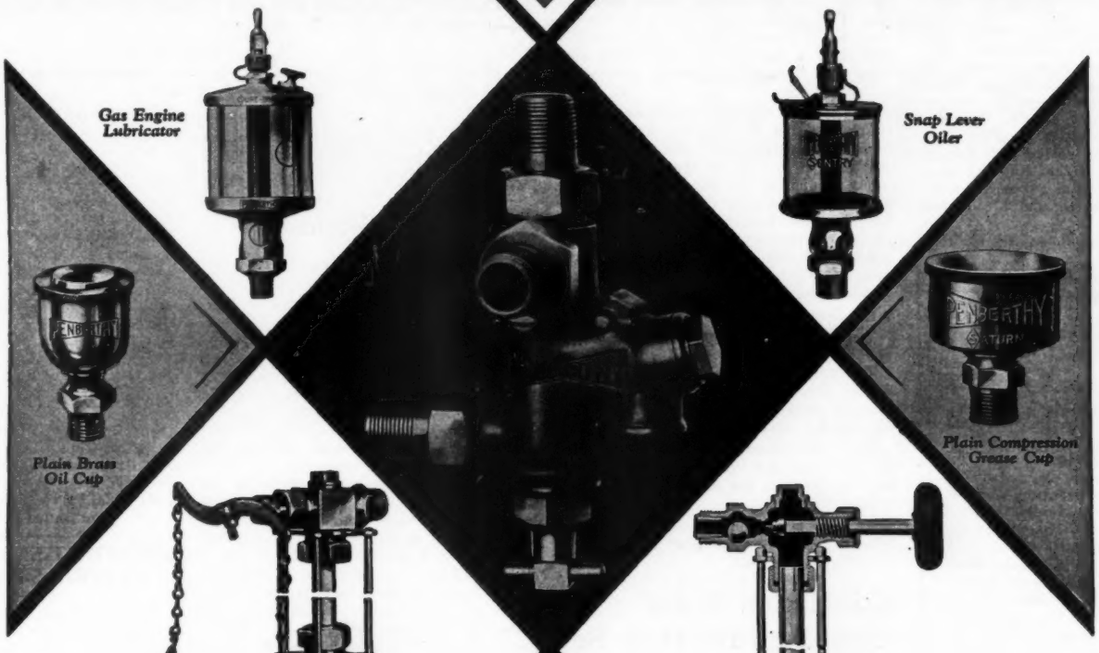

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Rocky Mountain Oil And Gas Association Holds Best Convention

GREAT FALLS, Mont., Dec. 15.—At the best attended and most representative convention ever held here the Rocky Mountain Oil and Gas Association by unanimous vote asked the United States Government to place a duty of $1 a barrel on crude oil imported and 50 cents ad valorem on refined products, also an equalization duty with Canada of 6 cents per 1,000 on natural gas.

The convention also passed a resolution urging the consuming public to patronize and encourage the use of Montana gasoline as a movement towards recognizing unemployment in fields and refineries here. It also went on record as opposing the present administration of oil and gas prospecting permits and leases under the policy of the Secretary of the Interior and asking the restoration of the act of 1920.

The Montana code committee in executive session during the convention unanimously agreed to cease entirely the loaning of equipment for the sale or use of gasoline, oils, greases, etc, which includes farm units and barrels. This was a most important step forward for Montana jobbers. Many new signers for the code were secured so that approximately 85 per cent of the total gallonage of the State will be marketed under code provisions.

The refiners by resolution ask the coming legislature to impose a bond to adequately insure payment of gasoline taxes by refiners or importers.

Secretary Walter F. Brittan, who was also chairman of the Montana code committee, said the convention passed into history as effecting better co-operation and more beneficial accomplishments than any previous meeting.

OIL MAN'S CALENDAR

JANUARY

3-10—New York, National Automobile Show.

7-8—Spokane, Wash., Washington Natural Resources Association.

8—New York, meeting, board of directors, American Petroleum Institute, A.P.I. headquarters.

10-16—St. Louis, Mo., twenty-eighth annual convention, American Road Builders Association.

12-18—St. Louis, Mo., American Roard Builders Show.

14-15—Minneapolis, Minn., Minnesota division, Northwest Petroleum Association, Radisson Hotel.

12-18—St. Louis, Mo., American Road Builders Show.

19-23—Detroit, Mich., annual meeting, Society of Automotive Engineers, Book-Cadillac Hotel.

24-31—Chicago, National Automobile Show.

29-30—Grand Forks, N. Dak., North Dakota division, Northwest Petroleum Association, Dacotah Hotel.

FEBRUARY

16-21 — San Francisco, Calif., National Western Metal Congress and Exposition.

24-26 — Columbus, Ohio, Ohio Petroleum Marketers Association, Neil House.

MARCH

16-22—Los Angeles, Calif., second annual Exposition, Oil Equipment and Engineering Exposition.

19-20-21 — San Antonio, Tex., American Association of Petroleum Geologists, Gunter Hotel.

30-3—Indianapolis, Ind., Eighty-first Meeting, American Chemical Society.

APRIL

13-18—Philadelphia, Pa., eighth annual convention and exposition, American Oil Burner Association, Ben Franklin Hotel.

15-16—A.P.I. Division of Refining, Statler Hotel, St. Louis, Mo.

MAY

4-9 — Charlotte, N. C., Good Roads Convention.

Memphis, Tenn., Natural Gas Department, A.G.A.

13-14—A.P.I. Division of Marketing, Mayo Hotel, Tulsa.

JUNE

3-4—A.P.I. Division of Production, Baker Hotel, Dallas, Tex.

Voshell Production Remains at 18.9 per Cent of Potential

Operators in the Voshell Pool, in McPherson County, Kansas, voted on Tuesday, December 16, to limit the production of the pool to 18.9 per cent of its potential production during the month of January.

A strong effort was made to lower the percentage, but the Sinclair Oil & Gas Co. insisted on running 2,500 bbls. per day, or 18.9 per cent of its own production which is estimated at more than 13,000 bbls. a day and it was found necessary to fix the curtailment percentage on that basis.

At present the only purchaser of oil in the Voshell Pool is the Shell Petroleum Corp., which is running about 3,800 bbls. of oil out of the field. All the other companies in the field that have gathering lines and either pipe line or loading rack facilities are taking only their own production. Some of the companies are storing all or a part of the production they run, while there are leases without any pipe line connection.

Conditions are in such a scrambled state that it was impossible to reach any satisfactory agreement.

The action taken was contrary to the wishes of most of the operators but was done in order that some semblance of curtailment could be maintained.

The state proration committee held a meeting after the Voshell meeting to further its program for extending proration in the State.

Kansas is producing about 103,000 bbls. per day and the pipe line demand is only 90,000 bbls.

Association Urges That Production Be Kept Down to Demand

OKLAHOMA CITY, Okla., Dec. 15.—A resolution of the Mid-Continent Oil and Gas Association board of directors commending the stand of the Oklahoma Corporation Commission in defending proration and urging continued oil curtailment in the State was filed today with the commission.

Clarel B. Mapes, assistant secretary of the association, filed the resolution, which has the indorsement of oil men, in Texas, Oklahoma and New Mexico, Mapes declared.

"This association indorses the principles that in applying proration, the allowable production in a given pool shall not exceed the ascertained market demand for oil therefrom," the resolution states.

"This association calls upon all producers to accept this principle and to co-operate fully with all state conservation agencies, the pipe line carriers, the purchasers, and all committees of the industries in making it effective."

The resolution asks that all companies "arrange their connection so as to assure every producer participation in the market outlet to the extent of his allowable production and to make all reasonable extension of gathering facilities."

In his letter submitting the resolution, Mapes said the association directors recognized that "a general overproduction problem now exists in the petroleum industry."

The resolution was submitted to the board by Robert Penn of Dallas, Mapes said.

High Spots in Field News

NORTH TEXAS AND PANHANDLE

New proration plans for Panhandle adopted. Gray county has good completion.

KANSAS

Wildcat in Russell County has hole full of oil in 12 hours and opens new area.

NORTH LOUISIANA-ARKANSAS

Sugar Creek has fifth gas well, which makes 37,828,000 feet of gas from upper Trinity.

EAST CENTRAL TEXAS

Well making 740 bbls. of 40 gravity oil believed to prove new Woodbine Pool in Joiner Pool.

OKLAHOMA

Wilcox area south of Wewoka yielding big wells. More big wells in north end of Oklahoma City Field.

SOUTHWEST TEXAS

Wells in Kerr, Bee and Goliad County and Agua Dulce Field may develop importance within few days.

WEST TEXAS

Runnels County well deepened increases production. Oil-gas ratio in Big Lake wells decreased on tubing wells.

GULF COAST

Moss Bluff well extends production. Important extensions at Refugio. Shepherds Mott well held up by sanding.

ROCKY MOUNTAIN AREA

Hobbs Pool extended to southwest. Eddy County has 1,000-bbl. well. Weld County, Colorado, well gauges 360 bbls.

Late Fields

OKLAHOMA

Phillips Petroleum Co., Hicks Drilling Co. and others' No. 1 Crouch, NW cor. SW, Section 5-6-5, a wildcat near Sacred Heart, in Pottawatomie County, which found water in the Wilcox sand at a total depth of 4,405 feet, was plugged back to 4,393 feet in an attempt to shut off the water. The well was swabbed and made 190 bbls. of oil and 120 bbls. of water in 12 hours, December 15. The next day's gauge was 275 bbls. of oil and 185 bbls. of water. The owners will probably plug back again.

Prairie Oil & Gas Co. and Tom Slick Oil Co.'s No. 1 Wright, C NW SW, Section 23-15-5w, a wildcat in Kingfisher County, was plugged back from a total depth of 6,890 feet, to 5,125 feet, and cemented. It was drilling the cement plugs at 5,154 feet, with nothing showing.

W. B. Pine's No. 1 Tiger, SE cor. NW SW Section 3-8-5, in the north extension to the Carr City Pool, swabbed 75 bbls. in 10 hours from the Wilcox sand at 4,210-17 feet.

Magnolia Petroleum Co.'s No. 2 Wood, SE cor. NE SW Section 29-6-6, in the Konawa Pool, in Seminole County, flowed 907 bbls. in 1 hour and 55 minutes, and was shut in.

Gypsy Oil Co.'s No. 1 Charty, NE cor. SE SW Section 29-6-6, in the Konawa Pool, made 57,500,000 feet of gas and was shut in. It is one of the largest gas completions in the Greater Seminole area. The total depth of the well is 2,856 feet.

Deep Rock Oil & Refining Co.'s No. 2 Douglass, SW cor. NE Section 30-8-8, in the area south of Wewoka, and a recent completion, was drilled deeper into the Wilcox sand from 3,932-4,001 feet, when it failed to flow. After the well was drilled it again failed to flow with the hole standing full of fluid. Same company's No. 1 Whitworth, NW cor. SW NE Section 30-8-8, flowed 1,040 bbls. in nine hours from the Wilcox sand at 3,899-3,922 feet.

Mid-Kansas Oil & Gas Co.'s No. 2 Davis, NE cor. SE NW Section 30-8-8, flowed 1,720 bbls. in two and one-half hours from the Wilcox sand at a total depth of 3,982 feet.

Hall & Briscoe's No. 4 Holmes, NW cor. SW SE, Section 10-11-3w, flowed 7,441 bbls. in three hours and five min-

(Continued on Page 152)

CHESTNUT-SMITH SALE TO LONE STAR APPROVED

The sale of the north Texas properties of Chestnut & Smith Corp. to the Lone Star Gas Co., including the seven gasoline plants, 324 tank cars, all oil and gas leases, contracts, the Naturaline Company of America, etc., was approved in Dallas today and the properties will be operated from Fort Worth as the Lone Star Gasoline Co.

Directors of the new company include T. B. Gregory, D. E. Mitchell, J. M. Simpson, L. B. Denning and R. A. Crawford. The directors have announced that the present personnel of the organization will be held intact but new officers will be appointed immediately. The new company will continue to operate the properties and to make such improvements and expansions as seem justified. The residue gas from the plants will be sold to the Lone Star Gas Co. The transfer becomes effective January 1.

SCORE SHEET ON OIL PRODUCTION

Below is shown allotted average daily production in the United States from October 1, 1930, to April 1, 1931, suggested by the American Petroleum Institute's special committee on the economic situation, and the actual daily average production during the week ending December 13:

	Allotted (bbls.)	Actual (bbls.)	Over (bbls.)	Under (bbls.)
Okla., Kans., S.W. Tex., North Tex.*	953,700	876,408	.....	77,292
West Texas and S. E. New Mexico...	316,300	302,013	.....	14,287
North Louisiana and Arkansas	86,400	94,965	8,565	.....
Gulf Coast	177,800	183,308	5,508	.....
Rocky Mountain	58,600	61,334	2,734	.....
California	530,100	611,250	81,150	.....
Other fields	110,600	111,000	400	.....
Total	2,233,500	2,240,278	98,357	91,579

Net average daily overproduction, 6,778 bbls.

*North Texas includes North, Central and East Central Texas and Texas Panhandle.

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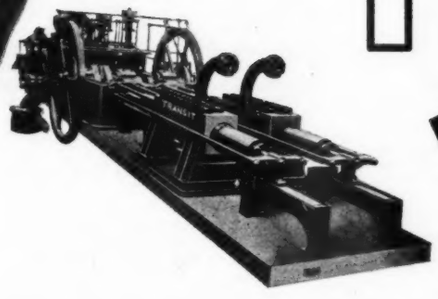

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LOS ANGELES
Republic Supply Company of California

BEAUMONT, TEXAS
E. L. Wilson Hardware Company

PHOENIX, ARIZ.
Pratt-Gilbert Co.

ST. LOUIS, MO.
Reeves & Skinner Machinery Co.

Potential Tests Increase Production

Oklahoma Averaged 469,000 Bbls. per Day in Past Week. More Big Wells in Oklahoma City. Revival of Wewoka

By W. A. Spinney
Staff Correspondent, Oklahoma Fields

Oklahoma's production was substantially increased during the seven days ending December 13, by reason of the new potentials in the Greater Seminole area. The State's production averaged approximately 469,000 bbls. a day for the same seven days, which was an increase of 18,000 bbls. a day over the previous week's gauges.

The Oklahoma City Field was extended over the week end bringing production nearer the business district of Oklahoma City. Gant & Garvin's No. 1 Donovan, SW cor. SE, Section 34-12-3w, is estimated to be a 50,000-bbl. producer with 35,000,000 feet of gas. The oil was found in the Wilcox sand at 6,310-6,486 feet.

During the week operators in the Oklahoma City Field completed six wells that were rated for approximately 300,000 bbls. a day of flush production. The new wells were allowed to produce only a few hours and then shut in when the tankage on the leases was filled. Pipe line companies were laying gathering lines to the different leases and the daily average production from the field was expected to show an increase. Seven new locations were announced during the week ending December 13 and work was underway on digging cellars at three of these locations.

Cited for Overproducing

The state proration plan of October 28, affecting the entire State of Oklahoma has been working smoothly, except for a few instances in the Oklahoma City Field and in the Asher-Wanette Field in Pottawatomie County. Operators cited by State Umpire R. M. Collins, at a hearing before the Oklahoma Corporation Commission December 11 as having overproduced included the Century Petroleum Co. and Marco Oil & Royalty Co. in the Oklahoma City Pool and the Wilcox Oil & Gas Co. in the Asher-Wanette Pool.

Carter Oil Co. has purchased 60 acres in Section 33-9-6, west of production in the Seminole Pool, from the First National Petroleum Corp., formerly the Gwinn Drilling Co., for the reported consideration of $250 an acre. The lease is located in the NE SW and N half SE SW, Section 33-9-6, and the test is located in the NE cor. SE SW, Section 33-9-6. The drilling test was spudded September 1, and has been shut down since. The test and acreage is southeast of the Amerada Petroleum Corp. and Dixie Oil Co.'s No. 1 Chase, in Section 29-9-6, which opened a new producing area in the Seminole group last summer. The test, No. 1 Earl, which has been shut down at 3[illegible] feet will resume drilling at once.

Revival of Wewoka Area

The new producing wells in the Wewoka area are being pinched to 50 bbls. a day after being completed. Mid-Kansas Oil & Gas Co.'s No. 2 Davis, NE cor. SE NW Section 30-8-8, was opened up for another gauge flowing 1,640 bbls. in 2 hours and 10 minutes. It will be pinched in to 50 bbls. a day. The well was completed early in the week flowing 1,845 bbls. in three hours. The well is producing from the Wilcox sand at a total depth of 3,982 feet.

The area just south of Wewoka in the eastern part of Seminole County along the Hughes County line is the most active in the greater Seminole group. Southeast of Wewoka, in Hughes County, the first well was found several years ago that started the development of the Greater Seminole oil activity. R. H. Smith drilled the discovery well finding production in the Cromwell sand. About two months ago the Deep Rock Oil & Refining Co., drilled below the Cromwell sand and found the Wilcox sand productive, the well making around 1,600 bbls. a day on the air-gas lift, under the proration plan. The same company completed its second well in the area making 1,150 bbls. a day. Mid-Kansas Oil & Gas Co. also completed a Wilcox sand producer which is estimated to be a 3,000-bbl. well, which is shut in for tankage and a pipe line connection. Several other tests are nearing the pay horizon.

Deep Rock Oil & Refining Co.'s No. 1 A. Douglass (60A), NE cor. SW Section 30-8-8, was estimated to be making 45,000,000 feet of gas at 3,087 feet. The gas blew wild for several days creating a dangerous fire hazard for Wewoka. It was brought under control and closed in when it became a hazard to surrounding wells and other property in the vicinity.

Another promising area lies 6 miles south of Wewoka, along the Seminole County and Hughes County lines, where the Empire Oil & Refining Co. found oil a few months ago, which resulted in other tests. Eason Oil Co.'s No. 1 Fish, SE cor. SW SE Section 19-7-8, made 2,490 bbls. the first 24 hours and was shut in. It is the largest well completed in the area. The area appeared to be spotted with small producers until the Eason Oil Co. completed its well on the west edge of the present production.

Another wildcat test showing for a producer in the northeastern part of Seminole County was shut in awaiting a pipe line connection. It was Atlantic Oil Producing Co.'s No. 1 Fixico, NW cor. SE Section 15-11-8. The well gauged 120 bbls. in 18 hours from the Cromwell sand at 3,523-24 feet during the week. The new well is 4 miles from the nearest production and is believed to be the opening of a new field. It is reported it may be shut in for an indefinite period until pipe line arrangements are made.

In Carter County

A well on the north edge of the Tatums Pool, in Carter County, was preparing to test a showing of oil and gas. The extension area has been defined on the three other sides. The test a quarter of a mile north of production was Lesh & McCall's No. 1 Hooks, SE cor. NW SW, Section 14-1s-3w, which was estimated to be showing for 300 bbls. a day. The operators were erecting tankage and expect to make a production test in a few days. The oil was found in sand at 2,485-2,557 feet.

The extension area in the Tatums Pool was found in and around Section 24-1s-3w, and dry holes have been found on the north, south and southeast edges, leaving only the northeast area to be tested.

Westheimer & Daube's No. 1 Westheimer, NE cor. NW, Section 25-1s-3w, was drilling in shale at 2,680 feet, without any showing. The test missed the regular sand and is drilling below the usual producing horizon in the field. The Texas Company's No. 4 Eaves, SE cor. SW, Section 24-1s-3w, on the south side of the field, was drilling the cement plugs at 2,340 feet. The total depth of the test was 2,363 feet, in sand. C. L. Anderson's No. 7 Eaves, SW cor. NE SW, Section 24-1s-3w, was drilling at 2,600 feet with nothing showing. The test had broken sand at 2,440-60 feet. Carter Oil Co.'s No. 1 Hopson, NE cor., Section 25-1s-3w, was shut down waiting for cement at 2,495 feet. Vernon Hale & Hudson's No. 1 Sontine, NW cor. SW SW, Section 19-1s-2w, a small producer completed a short time ago was shot with 100 quarts and swabbed 140 bbls. in 24 hours. It was an increase over the previous production as the well has been making 25 bbls. a day. Trevlyn Oil Co.'s No. 1 Meeks, SE cor. SW SW, Section 19-1s-2w, another small producer completed a short time ago, will also be shot.

Magnolia Petroleum Co. is active in the north end of the field with several operations. The company's No. 4 Pollack, SE cor., Section 14-1s-3w, a new producer on the north edge of the Tatums extension area, swabbed 71 bbls. in nine hours from a series of sands at 2,241-2,456 feet. Same operators' No. 1 McCrory, SE cor., Section 10-1s-3w, almost a mile northwest of production, was drilling at 1,500 feet.

Leasing in Caddo County

Leasing activity is still in progress in Caddo County. Major oil companies and others are checkerboarding in scattered areas. Indian Territory Illuminating Oil Co. and Sinclair Oil & Gas Co. are buying. Sinclair Oil & Gas Co. has taken leases in Townships 6-11w, 6-10w, 5-9w; Indian Territory Illuminating Oil Co. in Township 10-10w; Carter Oil Co. in Township 6-11w, and Darby Petroleum Corp. in Township 10-11w.

Tests in Roger Mills

Roger Mills County in the far western part of Oklahoma has two wildcats which recently changed hands, reviving interest on the west side near the Texas Panhandle border. O. C. Palmer and others took over the wildcat test of L. C. Hivick and a block of leases surrounding the No. 1 Davis, C NW NE Section 4-11-26w. The well was shut down for several months at 2,905 feet and plans to resume drilling operations in the near future. The pay is expected at 3,100 feet in the granite wash, which is productive in Wheeler County, Texas, across the county line to the west.

Ute Oil Co. purchased the Bucy & Stone's No. 1 Williams, C SW Section 23-14-24w, Roger Mills County, and were drilling the test deeper at 2,250 feet.

Leasing has been active during the last few months. Some of the recent transactions were Sinclair Oil & Gas Co. in Townships 14-24w, 13-22w, 13-23w, 12-25w, 11-24w; Roy M. Johnson in Townships 13-25w, 12-25w; Mudge Oil & Gas Co. in Township 12-22w.

Stephens County

Five operations in Stephens County were nearing the pay horizons at the close of the week. Three other operations were in the process of completion. One of these is a possible extension to the Empire Field. The wildcat test of Dixie Oil Co. and others' No. 3 Potts, SW cor. NE NW Section 3-2s-8w, has a showing of oil in the hole from sand at 2,458-70 feet. The completion of the test is being delayed until the 6-inch casing has been landed, which has frozen in the hole. Pace's No. 4 Dilly, NW cor. NE NW SW Section 27-2s-7w, has been recemented at 1,498-1,503 feet, after plugging back from 1,505 feet. Carter Oil Co.'s No. 1 Toney, NW cor. NE SW Section 27-2s-7w, is rigging up to pump from sand at 1,494-1,507 feet. The Texas Company's No. 1 Toney, SE cor. SW NW Section 27-2s-7w, is shut down after drilling into the oil sand at 1,498-1,504 feet. Morrison's No. 1 Hightower, NW cor. SW NE Section 15-3s-5w, is estimated at 5,000,000 feet of gas at 930-950 feet.

Salt Water Disposal

The use of dry holes for water disposal, said to have been successful in the Garber Field, is to be tried out in Osage County by The Texas Company. The well to be used is No. 7 Kohpay, NE cor. SW, Section 29-25-8, which was drilled to the Wilcox sand. The method

(Continued on Page 127)

WILDCAT OPERATIONS IN OKLAHOMA

(Descriptions are East and North unless marked otherwise)

NORTHERN OKLAHOMA

ALFALFA COUNTY

Company, farm and location—	Remarks:
Smith Brothers' No. 1 Forbes, SE cor. NW NW Sec. 12-27-11w	Shut down 1,232 ft.
J. W. Bailey's No. 1 Acre, SW cor. NE Sec. 14-24-11w	Drlg. 4,725 ft.

ATOKA COUNTY

Edgerton-Edwards' No. 1 Roland, C NW Sec. 9-1-15	Drlg. 135 ft.

BECKHAM COUNTY

Price-McFann's No. 1 Webster, C SW SW Sec. 34-8-26w	Shut down 765 ft.
Mid-Continent's No. 1 Schaff, C NE SW Sec. 22-11-22w	Waiting on cement to set 486 ft.
Mid-Texas Co.'s No. 1 Sidell, SE cor. SW SW Sec. 17-2-22w	Drlg. 2,510 ft.
White et al's No. 1 Green, SW cor. Sec. 24-10-24w	Drlg. 2,400 ft.

BLAINE COUNTY

Washoma Oil Co. et al's No. 1 Phillips, C NW SW Sec. 13-19-10w	Drlg. 4,508 ft.

CADDO COUNTY

Magnolia's No. 1 White, SW SE Sec. 25-6-10w	T. D. 5,012 ft.; plugged back to 3,065-3,100 ft.
Abernathy & Brown's No. 2 Houston, Sec. 24-6-11w	Shut down 1,090 ft.

CLEVELAND COUNTY

Harris et al's No. 1 Highbee, SE NW Sec. 20-6-1	Shut down 6,518 ft.

COAL COUNTY

Whitney et al's No. 1 Miller, SE NE Sec. 10-2-8	Drlg. 300 ft.
Mid-Western Oil Co.'s No. 1 Gum Bros., C SW NW Sec. 30-3-10	Shut down 2,326 ft.
Blackwell O. & G. Co.'s No. 1 L. Jackson, NW cor. Sec. 26-3-9	T. D. 5,055 ft.; plugged back to 4,010 ft.; dry and abnd.

COMANCHE COUNTY

Croy & Young's No. 1 Cline, NW NE NE Sec. 8-3-10w	Shut down 2,221 ft.
G. W. Stogner's No. 1 Doebel, C SW SW Sec. 3-3-9w	Shut down 1,450 ft.

GARFIELD COUNTY

E. L. Love et al's No. 1 White, SE cor. NW Sec. 9-24-6w	Shut down 5,825 ft.

GRADY COUNTY

J. V. Bailey's No. 1 Hubbard, C NE NW Sec. 1-10-6w	Shut down 100 ft.

GREER COUNTY

French's No. 1 Murphy, SW NW Sec. 23-7-21w	Shut down 780 ft.

HARMON COUNTY

Harmon-Tex Oil Co.'s No. 1 Hoadley, NE cor. Sec. 17-4-24w	Shut down 2,593 ft.
S. M. Stauffer's No. 1 Castleman, SW NE Sec. 8-4-26w	Shut down 625 ft.

HARPER COUNTY

Empire's No. 1 Bruce, C NE SW Sec. 12-25-20w	Drlg. 7,388 ft.
Sinclair Oil & Gas Co.'s No. 1 Howell, C SW SW Sec. 14-26-24w	20,000,000 ft. gas 5,350-5,400 ft.; total depth 8,589 ft.; shut down; sprayed 50 bbls. gasoline.

HASKELL COUNTY

I. T. I. O.'s No. 1 Blake, SW NW Sec. 3-10-21	Drlg. 3,007 ft.
Mid-Western's No. 1 Poister, C NE SE Sec. 33-10-22	Shut down 4,297 ft.
Holden's No. 1 Phillip, SE cor. Sec. 3-9-18e	Shut down 1,860 ft.
Marion Oil's No. 1 Sanders, NW NE NW Sec. 10-9-18e	Shut down 2,387 ft.

(Continued on Page 102)

in past ten weeks « « «

Development of new and efficient units through experience is the reason for this business, at a time when refiners are cautious and demand the best.

SONS COMPANY

TULSA HOUSTON BOSTON

Sugar Creek Brings in Fifth Gasser

Triangle Drilling Co.'s No. 1 Brownfield, Seventh Well in Field, Makes 37,828,000 Feet of Gas From Upper Trinity

By D. H. Bancroft
Staff Correspondent, Louisiana-Arkansas

SHREVEPORT, La., Dec. 15.—Sugar Creek district of Claiborne Parish took first place in the news this week when Triangle Drilling Co.'s No. 1 Brownfield, NE NE. Section 6-19-5, was completed, making 37,828,000 feet of gas at 1,860 pounds from the upper Trinity at 4,392 feet. It was the company's seventh completion in the newest gas field of this territory and the fifth producer. Total open flow production of the five wells is 150,000,000 feet and the gas will run around 1,000 gallons of gasoline content to 1,000,000 feet. This will be extracted by a plant now under construction to be operated by the Louisiana Gas & Fuel Co. (United Gas Co.), which has a third interest in the properties.

Zwolle was out of the picture so far as completions are concerned for the first time in many weeks, but still furnished some interesting developments. H. W. Perritt's No. 1 Bowman Hicks, SW NE, Section 2-7-12, a quarter mile northwest of production in the so-called "south extension" of the Zwolle area, is perhaps the most interesting of these because it has shown more gas than any other well in the entire district. Zwolle, which has the appearance of an extensive area dotted by several small groups of producers located at wide intervals with plenty of vacant space between, leaving plenty of room for future development which may or may not connect all these groups, never has shown much gas. Most of the wells that have been completed have had to be standardized before they would produce and those that did come in flowing natural went on the beam before many days.

Flowing by Heads

The Perritt well, however, came in flowing by heads from 2,283 feet, took a dry core for 5 feet farther and started blowing an estimated 3,000,000 feet of gas with a heavy spray of oil and is now making about half that much gas with the same amount of oil.

Lacy-Jessup Oil Co.'s wildcat, No. 1 Brown, NW NE, Section 28-8-10, 8 miles northeast of nearest production in Zwolle, topped Zwolle chalk at 2,690 feet just about where the deep wells of the area have been completed at 100 feet or so in, and was drilling at 2,790 feet. Lacy Producing Co.'s No. 1 Cooper, SW NE, Section 30-8-11, a mile east of the nearest production in the "north extension," was dry with no show in the shallow marl at 2,370 feet, but is waiting orders with 400 feet of oil in the hole from 2,600 feet in the chalk. Merritt and others' No. 1 Louisiana Long Leaf Lumber Co., NE NE, Section 33-8-11, three-quarters of a mile north of production in the "east extension," topped marl at 2,300 feet and had a black sand which apparently did not mean anything, and was drilling at 2,352 feet. This sand is supposed to have been from one of the barren strata found above the marl and to have sifted down while the well was waiting for casing. Whatever the reason for its presence may have been, it is more a curiosity of Zwolle's curious developments than anything else.

Lyde and others' No. 1 Ponder, SE NW, Section 15-7-11, a mile south of nearest production, was dry at 2,601 feet, went on to 2,800 feet and tested dry on a show of oil at 2,800 feet. It probably is a dry hole but in Zwolle it is not safe to bet on correlations. One of the rankest wildcats in all Sabine Parish—yet not so rank taking into consideration history of North Louisiana in general and Sabine in particular—is Magnolia Petroleum Co.'s No. 1 R. J. Lucius, NW NE, Section 2-5-12, 12 miles south of Zwolle and half that distance south and a little west of Many. Location of this well is a little east of south of the town of Noble and about 2 miles east of where Wilson & Sons are drilling No. 1 Gandy-Garrett, down 1,930 feet.

F. A. Bartlett's No. 1 Logan, NW NW, Section 27-10-12, Pleasant Hill district of Sabine Parish, blew out at 2,952 feet with an estimated 10,000,000 feet of gas and a spray of oil, 2 feet under the 6⅝-inch seat. According to the maps, it is an offset to a hole drilled by one of the major companies to 3,250 feet that went dry shortly after completion.

Torsion Balance Crews at Work

Gulf Refining Co. is still working with torsion balance crews in Bossier Parish which just now are covering territory in the flat lands between Red River and the first of the ridge of hills that rises about 9 miles east of Shreveport. This territory is supposed to be the last detail of the extensive geophysical campaign Gulf Refining Co. has been carrying on in the northwest quarter of Louisiana for several years. Meanwhile, Gulf's No. 1 Bodcaw, Section 13-13-8, Natchitoches Parish, a test predicated on some of this geophysical work, is drilling sandy shale at 1,156 feet. In the Bellevue district of Bossier, H. I. Morgan had a little gas at 1,784-96 feet and set 6-inch for a test of No. 11-B Kendrick, NE SW, Section 22-19-11, which he has been getting the upper Trinity gas and salt water in a series of wells on the south and southwest flank of Bellevue Dome. Palmer Corp.'s No. 1 Johnson, NE NE, Section 24-17-12, Sligo district of Bossier Parish, just north of the Elm Grove area, being dry all the way down to 2,563 feet from 887 feet where it was a fair gas well three months ago, plugged back to 2,300 feet before perforated at 1,750 feet to make another test of the original pay. R. O. Roy's No. 1 Hunter, SW SW, Section 24-16-11, a few miles east of Elm Grove, tested salt water at 2,586 feet in 3 feet of sand that made a show of oil, and is drilling at 2,620 feet prepared to abandon the test at 2,700 feet unless something better shows up.

The Texas Company's No. 1 Pine Woods, Section 25-23-12, Carterville district of Bossier Parish, which cratered at 2,672 feet after a blowout of gas, was repaired and drilled to 3,152 feet, and finished at that depth as a 5-bbl. pumper. Tippett Drilling Co.'s No. 3 Holmes, NE NW, Section 36-23-12, carried on the list as waiting on standard rig since last June, is abandoned, total depth 3,180 feet. Like several other wells in Carterville and elsewhere in this territory, it was waiting on standard rig until the recent cut in crude, which reduced the price of oil in this territory until it was not worth while to rig small potential producers to make them produce.

Daily Average Runs

Daily average runs for the week were off 575 bbls. compared with production of the week before, North Louisiana pools being responsible for it for the first time in many weeks. Arkansas' runs were up. It was not much of an increase, 95 bbls., but it cut the net that much from Louisiana's decline of 670 bbls. Most of the decline was in Louisiana heavy oil runs. Caddo heavy dropping 155 bbls., Bellevue 140 bbls. and Urania 220 bbls. Zwolle declined 130 bbls. and there were small fluctuations in all other pools. Arkansas' increase was due to the two new wells in Champagnolle but decreases in other pools held their effect to a narrow margin. Daily average runs from the field were:

NORTH LOUISIANA

Caddo, light	8,480
Caddo, heavy	2,700
Homer	3,200
Haynesville	5,290
DeSoto-Red River	2,800
Elm Grove	520
Bellevue	540
Cotton Valley	1,835
Urania	5,060
Pleasant Hill	445
Sarepta-Carterville	2,100
Zwolle	9,510
Holly	920
Total	43,500
Last week	44,170
Decrease	670

ARKANSAS

El Dorado	3,940
Smackover, light	4,780
Smackover, heavy	35,290
Stephens	880
Nevada County	1,000
Lisbon	830
Champagnolle	3,510
Bradley	65
Mount Holly	70
Urbana	1,100
Total	51,465
Last week	51,370
Increase	95
Both states	94,965
Last week	95,540
Decrease	575

Another Pine Island Test

Pine Island district of Caddo Parish, where there has been nothing but shallow chalk rock drilling since Dixie Oil Co.'s No. 92 Dillon, Section 13-21-15, failed at 6,355 feet after four months' shutdown following a gas show in September, 1929, is to have another deep test, though only about half as deep in The Texas Company's No. 8 J. F. Herndon. This well, SE SW, Section 14-21-15, completed two or three years ago

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LOUISIANA-ARKANSAS PROVEN AREAS

(Rotary operations unless otherwise designated.)

NORTH LOUISIANA

BOSSIER PARISH—BELLEVUE

Company, farm and location—	Remarks—
H. I. Morgan's No. 11 Kendrick, 200 ft. N, 600 ft. E, SW cor. NE SW, Sec. 22-19-11	Cored oolitic lime 1,784-96 ft; D.S. test showed little gas; cmtd. 6-in. 1,806 ft.

BOSSIER PARISH—CARTERVILLE

Del.-La. Dev. Co.'s No. 6 Bollinger, 330 ft. S, 220 ft. W, NW cor., Lot 17, in Lot 16, Sec. 31-23-11	Hole full oil; W.O.S.R; 15 ft. broken sand; T.D. 3,217 ft.
Palmer Corp.'s No. 3 Roberson, 330 ft. N, 330 ft. E, SW cor. NW NE, Sec. 26-23-12	Derrick.

BOSSIER PARISH—ELM GROVE

R. O. Roy's No. 1 Hunter, 660 ft. N, 660 ft. E, SW cor., Sec. 24-16-11	3-ft. sand showing oil 2,586 ft; cmtd. 6⅝-in. 2,546 ft; tested S.W. 2,586 ft; drlg. 2,620 ft.

BOSSIER PARISH—SLIGO

Palmer Corp.'s No. 1 Johnson, 660 ft. S, 660 ft. W, NE cor., Sec. 24-17-12	Plugged back to 2,300 ft; old T. D. 2,694 ft.
Palmer Corp.'s No. 1 Schnitt, 660 ft. S, 660 ft. E, C. Sec. 14-17-12	O.W.D.D; arranging to deepen 877 ft.
Woodley Pet. Co.'s No. 1 Sheppard, SE SW, Sec. 14-17-12	Began drlg. Dec. 4; cmtd. 10-in. 120 ft; 6-in. 1,693 ft.

CADDO PARISH—GREENWOOD

Calatex O. & G. Co.'s No. 1 Edgar, 1,460 ft. S, 1,900 ft. E, NW cor., Sec. 17-16-16	Location.
Calatex O. & G. Co.'s No. 1 McAnn-Alfred, 1,310 ft. S, 970 ft. E, NW cor., Sec. 17-16-16	Location.
Junior O. & G. Co.'s No. 1 Brend, 1,980 ft. W, 1,320 ft. N, SE cor., Sec. 9-18-16	Began drlg. Dec. 3; cmtd. 10-in. 100 ft; drlg. 1,400 ft.

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WILDCAT OPERATIONS IN LOUISIANA-ARKANSAS

(Rotary operations unless otherwise designated.)

NORTH LOUISIANA

BIENVILLE PARISH

Company, farm and location—	Remarks—
Carter & Dobbs' No. 1 White, 330 ft. N, 330 ft. W, SE cor. SE SE, Sec. 9-18-6	S.D; W.O. 2,262 ft.
Coyle Bros.' No. 1 Lawhon, 300 ft. N, 300 ft. E, SW cor. SE NE, Sec. 15-16-8	Drlg. 1,420 ft.
S. P. Borden's No. 1 Thomas, 330 ft. S, 330 ft. E, NW cor., Sec. 27-16-9	Drlg. lime 4,460 ft.

BOSSIER PARISH

Andrews & Davlin's No. 1 Nattin, 100 ft. N, 250 ft. W, C, Sec. 15-22-14	S.D. fuel 1,576 ft.
Rombaugh et al's No. 1 Allison, SW SE, Sec. 10-19-13	S.D. repairing rig 1,100 ft.

CADDO PARISH

R. H. Libby's No. 1 Foster (was Gooch et al's), Sec. 29-15-16	Began drlg. Dec. 5; drlg. 150 ft.
Tex.-La. Prod. Co.'s No. 1 French, 1,270 ft. N, 675 ft. E, SW cor. NW, Sec. 34-23-16	Drlg. hard lime and shale 4,961 ft.
Tex.-La. Prod. Co.'s No. 1 Wall, 2,175 ft. N, 1,980 ft. W, SE cor., Sec. 33-23-16	Drlg. hard lime 4,583 ft.

CALDWELL PARISH

Hudson et al's No. 1 Burton, Sec. 35-12-2e	S.D. 2,437 ft.

CATAHOULA PARISH

National Drlg. Co.'s No. 1 Marsh McMiller, 70 ft. N, 100 ft. W. C. Sec. 26-9-6	Cmtd. 6⅝-in. 2,796 ft.

CLAIBORNE PARISH

Baird Bros. et al's No. 1 Whittaker, 600 ft. N, 400 ft. W. SE cor. NE. Sec. 30-20-7	S.D. 2,200 ft.
Baugh et al's No. 1 Alexander, 330 ft. S, 330 ft. W, NE cor., Sec. 27-20-8	S.D. 2,200 ft.
Prairie O. & G. Co.'s No. 1 Shackelford, 331 ft. S, 327 ft. E. NW cor. SE NE, Sec. 30-23-5	S.D; W.O. 3,893 ft.

CONCORDIA PARISH

La. G. & F. Co.'s No. 2 Saunders, 783 ft. S, 2,155 ft. E, NE cor., Sec. 11-8-9, in Sec. 42-8-9	Began drlg. Dec. 6; drlg. 125 ft.
Joe Marr et al's No. 1 Maxwell, C. Sec. 35-3n-8e	Drlg. 3,612 ft.

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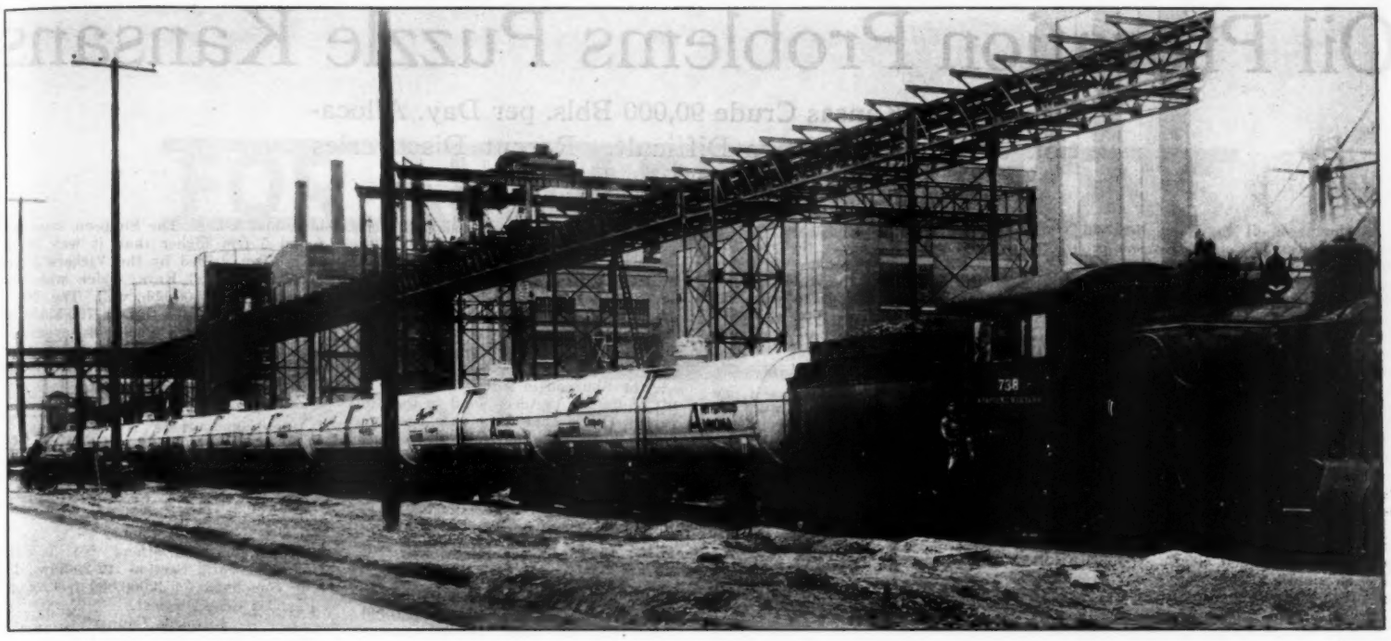

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Barrett Standard

ANHYDROUS AMMONIA

Oil Proration Problems Puzzle Kansans

Demand for Kansas Crude 90,000 Bbls. per Day. Allocation of Pipe Line Runs Difficult. Recent Discoveries

By W. A. Spinney
Staff Correspondent, Kansas Fields

A showing of oil was found in a wildcat test in Russell County, Kansas, probably adding another pool to the county. Austin Drilling Co.'s No. 1 Rockefellow, SE cor., Section 6-13-12w, found oil in the Oswald formation at 3,044-45 feet. The oil rose 600 feet in the hole over night. Drilling operations were temporarily suspended until the operators can erect tankage. Many express the opinion that with deeper drilling the chances of finding more oil are favorable. The test is being drilled on a block of 5,000 acres. Companies owning acreage in the block are Mid-Kansas Oil & Gas Co., The Texas Company and several smaller operators.

Average daily production in Kansas for the week ending December 13, was approximately 103,500 bbls. a day, a decline of almost 1,600 bbls. a day from the previous week's output.

Phillips Quits Buying

Phillips Petroleum Co. announced during the week that effective December 15 it would disconnect and quit buying oil in the State of Kansas from all wells except its own and its partnership leases. The Phillips Petroleum Co. has considerable production in the State and was buying around 700 bbls. a day from other producers. The company acquired a substantial amount of production in Kansas when it consolidated with the Independent Oil & Gas Co. a few months ago. About two years ago the Independent Oil & Gas Co. bought the Manhattan Oil Co. which had a number of producing properties in the State.

Phillips Petroleum Co. last month adopted the Oklahoma plan of proration in curtailing its production outside of the flush pools in the State. Under the Oklahoma proration plan all producing wells in heretofore nonprorated areas are curtailed 50 per cent for production in excess of 5 bbls. a day.

The Prairie Pipe Line Co. is expected to run a total of about 4,000 bbls. from the Schurr Pool, near Raymond in Rice County, until the first of the year, at that time it will cease purchasing altogether. It was expected the Prairie would run all the 11,000 bbls. of storage oil from the area which was awaiting a pipe line outlet. The Prairie has finished running the storage oil from the Producers & Refiners Corp. tanks and will curtail all further shipments to the level of the proration plan effective in the area from the other five producing leases.

Proration Problems

The Kansas proration committee is working out a new and equitable proration plan, which will be based on the market requirements and outlet set by the purchasing companies. The statewide committee, headed by Lee Scott and State Umpire T. C. Johnson, made a survey of the purchasing companies and found the State's present pipe line requirements to be around 90,000 bbls. a day. Any new action taken by the state committee appears to hinge on the outcome of the Voshell Pool operators' meeting in Tulsa December 16, which has been called to adjust the percentage of production in the Voshell Field.

The percentage of proration in the Voshell Field was increased when the Sinclair Oil & Gas Co. announced it was going to run 20 per cent of its own potential production only. The curtailment at that time in the field was about 8 per cent of the potentials. The result of the Sinclair Oil & Gas Co. increasing its runs from the field, increased the entire production of the pool during the last week 100 per cent, production increasing from 6,500 bbls. a day to 13,300 bbls.

The proration committee is working out a plan safeguarding the interests of operators owning small and shallow producing wells in the State. Nothing will be done that might cause the abandonment of the stripper wells. Some expressed the opinion if the statewide proration committee is unable to work out an equitable curtailment plan the state legislature would be asked to draft proration laws.

New Location in Rice County

Robertson and others announce a new location southwest of production in the Welch Pool in Rice County. The test is located in the NE cor. SE SW, Section 3-21-6w. It is located southwest of the recent Hipple & Rogers extension well which flowed 1,450 bbls. in 18 hours Allison-Fitzwilliam Petroleum Corp.'s No. 1 Walsten in Section 2-21-6w, is also a new location.

Skelly Oil Co.'s No. 1 Miles, NE cor. Section 30-27-10w, a wildcat test in Kingman County, was shut down at 3,082 feet, with another showing of gas. The test found 10,000,000 feet of gas, which was bradenheaded from a series of sands from 2,000-2,142 feet. The company has been using the gas for fuel while drilling deeper.

In the Decker gas field, Graham Oil Co. and others' No. 1 Robinson, in Section 10-19-2w, McPherson County, was shut down with a showing of gas which was estimated at 1,000,000 feet from the chat at 2,927 feet. It was cementing the casing before drilling into the chat formation.

Shell Petroleum Corp.'s No. 3 Lygrisse in Section 15-26-2, Sedgwick County, in the Greenwich Pool, was being completed in the chat at a total depth of 2,901 feet. The well was estimated at 150 bbls. of oil and considerable water.

Lost Springs Extended

Production in the Lost Springs Pool, in Marion County, was extended nearly a half mile northeast. Harwood Oil Co.'s No. 1 Cowman, NW cor. NE SW Section 11-17-4, found oil in the chat at 2,342 feet. The oil rose 500 feet in the hole in a few hours. The offsets to the new well are owned by Youker on the west, Magnolia Petroleum Co. northwest, and the north offset is owned jointly by Phillips Petroleum Co. and Harwood Oil Co. The field has been dormant for some time. Then Youker drilled No. 1 Riffel, in the NW cor. SW SW Section 11-17-4, extending production a quarter mile north, with a 100-bbl. well. Most of the production in the pool lies south of the recent discoveries.

Good Deep Sand Well

Mid-Kansas Oil & Gas Co.'s No. 1 Garrett, SW cor. NE Section 30-19-1w, McPherson County discovery deep sand producer north of the Ritz Pool, has completed a 15-day swabbing test and was pinched in to 50 bbls. a day. The well swabbed as high as 3,460 bbls. in 24 hours from the Simpson sand at 3,407-14 feet. The next test expected to reach the deep pay horizon in the area is W. C. McBride, Inc.'s No. 1 Whitwright, NE cor. SW Section 30-19-1w, the diagonal offset, which was drilled deeper from the chat, where it was producing around 85 bbls. a day. It has cemented the casing on top of pay and was expected to drill into the Simpson in a few days. The result of finding the deep sand in the Mid-Kansas Oil & Gas Co.'s well has stimulated the drilling of tests in the area.

The second deep sand well was completed in the Canton area during the week. W. C. McBride. Inc.'s No. 1 Whitwright, NE cor. SW Section 30-19-1w, McPherson County, swabbed 229 bbls. in five hours from the Simpson sand at 3,114-21 feet.

Sedgwick Production

Production from Sedgwick County has been averaging approximately 23,000 bbls. a day from 191 wells. The Eastborough Pool has 29 wells connected to pipe lines with a total of 32 completed for the week ending December 12, averaging around 10,500 bbls. a day. The Valley Center Pool has 113 wells averaging around 9,500 bbls. a day. Greenwich Pool is making around 2,500 bbls. a day, and the balance of the production was coming from the Robbins, Goodrich and scattered wells in the county. The production in Sedgwick County is mostly being handled by pipe lines of Kansas refiners, and the recent announcement of the Prairie Oil & Gas Co. that it would quit purchasing oil after December 31, 1930, is not expected to cause additional curtailment in these areas.

Oil production was brought within six blocks of the city limits of Wichita during the week by the Blankinship Petroleum Co.'s No. 1 Schott, SE cor. SW NE, Section 24-27-1, extending the Eastborough Pool, in Sedgwick County. Oil rose 1,200 feet in the hole from the chat at 2,979-84 feet. The oil was showing through cavings in the hole and a production will be made when the hole is cleaned out. About a block away is located the Woodlawn Heights Addition, one of the residential districts of Wichita. The well is structurally running about level with the other producers in the Eastborough Pool, but it was showing a small amount of water. Some express the belief it may be an edge well and the main part of the pool may be under the College Hill and Lincoln Heights districts in the Woodlawn Addition.

Another deep sand producer was found in the Eastborough Pool during the week on the south edge of the field. Blankinship Petroleum Co.'s No. 2 Schafer, SE cor. NE NW, Section 30-27-2, found oil in the Simpson sand at 3,256-65 feet. The oil rose 2,000 feet in the hole in an hour and a half. The Simpson sand was found 5 feet higher than it was in the east offset drilled by the Vickers Petroleum Co., No. 3 Keys, which was completed as a 2,000-bbl. well. The No. 2 Schafer is estimated to be a 700-bbl. well.

The Eastborough Pool has seven deep sand producers covering an area of about one-half mile north and south and the same distance east and west.

Cowley County

Martin and others' No. 2 Glacken, C NE SE, Section 23-32-4, has been completed for 750,000 feet of gas in sand 635-57 feet. Gralap and others' No. 1 Shane, C NE SE, Section 24-33-5, is spudding.

Grant County

Hardendorf and others' No. 1 Sullivan, NE cor., Section 12-29-38w, has been completed for 3,000,000 feet of gas in sand 2,455-2,700 feet.

Edwards County

Barnsdall Oil Co.'s No. 1 Carroll, C SW, Section 32-25-17w, has been completed for 6,500,000 feet of gas in sand 4,547-62 feet.

Ellis County

Central Commercial Oil Co.'s No. 1 Helm, SE cor. NE, Section 2-12-20w, has been abandoned at 4,250 feet.

Greenwood County

Harper & Dick moved a machine in for No. 1 Branson, CWL SW NE, Section 3-25-11. Aladdin Oil Co. and Phillips Petroleum Co.'s No. 3 Harris, NW cor. NE SW, Section 19-22-11, has been completed for 400 bbls. in sand 2,020-47 feet. Empire Oil & Refining Co. and Rhodes' No. 1 Braddock, SW cor. NW, Section 23-22-12, made 35 bbls. in sand 1,700-17 feet.

Lyon County

Sheedy and others' No. 1 Welch, SE cor. NW, Section 31-20-10, has been abandoned at 2,555 feet.

McPherson County

Graham Brothers' No. 2 Rolander, SW cor. NW SW, Section 30-18-2w, is a rig. Labengayer & Gurley moved the rig in for No. 1 Rosenberg, C NE NW, Section 31-18-2w. Lario Oil Co. and Shell Petroleum Corp.'s rig is up for No. 1 Wiggers, NE cor., Section 36-19-2w. Deeter and Shell Petroleum Corp. and others made location for No. 1 Sellers, SE cor. SW SW, Section 19-19-1w. C. B. Davis and Shell Petroleum Corp. and others' No. 1 Ritz, SE cor. SW, Section 19-19-1w, is moving in. Madison and Shell Petroleum Corp. made location for No. 1 Unruh, NW cor. SE, Section 31-19-1w. Shell Petroleum Corp. has the rig up for No. 1 Koehn, SW cor. SE NE, Section 16-21-3w. Palmer and Phillips Petroleum Co.'s No. 1 Ritz, SW cor. NW NW, Section 7-20-1w, has been completed for 1,590 bbls. in chat 2,930-86 feet.

Rice County

Hipple & Rogers' No. 1 Rainet, NE cor. NW SE, Section 3-21-6w, south extension to the Welch Pool, has been completed for 1,297 bbls. in chat 3,370-90 feet.

Rooks County

Stearns & Streeter's No. 1 Conger, SE cor. NW NE, Section 16-10-16w, has been abandoned at 3,483 feet.

Russell County

Keys Petroleum Co., Inc., has the cellar dug for No. 13 J. Mills, SW cor. SE, Section 33-13-15w. Stearns & Streeter and others' No. 3 Mermis, SE cor. NW SW, Section 33-13-15w, is a rig. The Prairie Oil & Gas Co. made location for No. 2 Hefferman, NW cor. NW SE, Section 26-15-13w. Signal Oil Co. and others' No. 1-A Sellens, NE cor. SW, Section 26-15-13w, is a rig. Empire Oil & Refining Co.'s No. 1 Sherwood, SE

(Continued on Page 136)

WILDCAT OPERATIONS IN KANSAS

(Descriptions are East unless marked otherwise)

BARTON COUNTY

Company, farm and location—	Remarks:
Skelton Oil Co.'s No. 1 Ott, C SE SE Sec. 16-19-14w	Drlg. 565 ft.
McCool et al's No. 1 Tsern, NW SE NE Sec. 12-20-11w	Shut down 1,600 ft.

BUTLER COUNTY

Farrell et al's No. 1 Sutton, NW cor. Sec. 18-28-7	Shut down 1,875 ft.

CLARK COUNTY

Watchorn's No. 2 Morrison, NW NE Sec. 20-32-21w	T. D. 6,909 ft.; plugged back to 6,530 ft. to test show gas.

CLAY COUNTY

Crystal Oil et al's No. 1 Tivier, SW cor. Sec. 19-8-2	Shut down 2,390 ft.

COFFEY COUNTY

Heyburg's No. 1 Kroft, SE SW SE Sec. 30-22-14	Shut down 1,150 ft.
Roberts et al's No. 1 Hay, SW SE NW Sec. 32-22-15	Fishing 1,250 ft.

COWLEY COUNTY

Roth & Farout's No. 1 Reedy, SW NW NE Sec. 8-32-8	Shut down 1,040 ft.
Tom Fine's No. 1 Boyd, NW NE Sec. 28-32-4	Shut down 2,650 ft.

DICKINSON COUNTY

Severs et al's No. 1 Lavengood, NE SW Sec. 13-13-2	Shut down 2,955 ft.

ELLIS COUNTY

Central Commercial Oil Co.'s No. 1 Helms, SE cor. NE Sec. 2-12-20w	Drlg. 4,248 ft.

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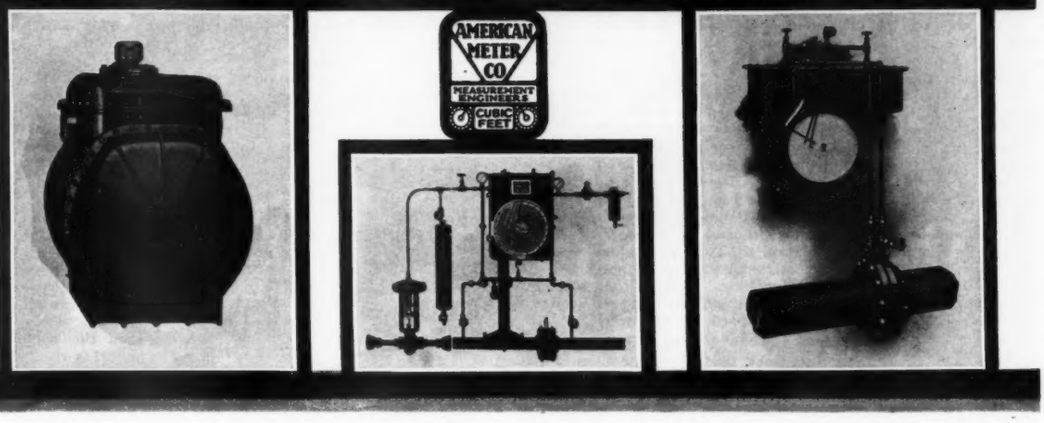
FOR ALL APPLICATIONS



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2. Agitation Steam to Still.
3. Steam to Preheater.
4. Steam to Reboiler Sections.

3. GASOLINE
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2. Reflux to Rectifier.
3. Reflux to Still.
4. Runs to and from Storage.

4. GASOLINE VAPORS
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2. Uncondensed Vapors from Still.
3. Rectifier Overhead.

5. LEAN OIL
1. Master Meter . . . Total Circulated.
2. Individual Absorber Intakes.

6. WATER
1. Master Meter.
2. Water Softener Throughout.
3. Boiler Feed.
4. Cooling Tower Make-up.
5. Volume over Coils in Cooling Tower.
6. Engine Jacket Water.
7. Condensate from Gasoline Water Separator.

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Southwest Texas Tests Nearing Finish

Wells in Four Different Parts of This Territory May Develop Into Something of Extra Importance Within a Few Days

By B. D. Stevenson
Staff Correspondent Southwest Texas Fields

SAN ANTONIO, Tex., Dec. 15.—Several spots that may be the object of proration conferences in Southwest Texas later on loomed on the horizon of Southwest Texas this week. L. L. Evans' No. 1 Love in Kerr County which has been bridged over and choked in while waiting for new rig to be built got going the past week. Rig was completed and the cable was caught and the end pulled to the top and clamped and the well began making gas again showing that it was really choked off and not merely exhausted. But the tools are still caught and cannot be pulled and an effort is being made to drill past.

In Bee County Moody-Seagraves-Independent Oil & Gas Co.'s No. 1 Welder, 15 miles southeast of the Pettus Field, at 4,360-70 feet got a core saturated with oil. Since the bringing in of the discovery well of northern Bee County there has been a lot of discoveries over all that county and quite a number of isolated one-well propositions but the core from this well looked good and a drill stem test will be made at once. The Refugio Field is 17 miles southeast of it. The one well of the Normanna Field is 13 miles northwest and Beeville is 10 miles west. The test is pure wildcat and in the center of a big block of acreage owned as a unit.

Another interesting proposition is the Houston Oil Co.'s No. 1 Comstock in the Agua Dulce gas field where production is at about 2,000 feet. The No. 1 Comstock is down 4,913 feet and estimated at 40,000,000 feet of gas and 30 bbls. of gasoline. It has a closed in pressure of 1,950 pounds and a working pressure of 1,200 pounds on five-eighths and one-half inch chokes.

In Goliad County T. B. Slick's No. 1 Poetter (carried by some as No. 1 Taylor) has a gas sand at 4,199-4,212 feet and will set casing. It was thought casing would be in the hole and set by the first of this week. It looks pretty much like a new gas pool at least. On drill stem test it showed 500 pounds pressure in four minutes. It topped the Jackson formation at 3,080 feet which is considered extra high.

This makes a total of four tests anyone of which may develop into something of extra importance this week.

In Proven Fields

In proven fields the completions of the week were of ordinary interest. In the Darst Creek Field there were four completions of average size, two in the Chapman Pool in Williamson County and one in the Dale area by W. D. Amderson on the Vickery which is a small well. In the Darst Creek Field The Texas Company got a dry hole in its No. 1 R. C. Appling which was so located that if it had been a producer it would have connected up the main field on the southwest with the group of crevice wells on the Appling property to the northeast. As it is it seems to put up a barrier between them. These mentioned are all in the Balcones fault area east of San Antonio.

In the Laredo territory there were two producers completed, one in the Killam-Cuellar Pool and the other in the Escobas-Muckelroy Pool and two dry holes abandoned. There were 12 new locations made in the Laredo district the past week however which indicates considerable new activity in that region.

Production

Daily average production of the pools in the Southwest Texas area for the week ending December 13 follows:

Bexar	304
Branyon	21
Bruner	15,189
Buchanan	126
Chapman	255
Dale	291
Duval	237
Darst Creek	36,657
Kingsville	114
Larremore	15
Luling	9,451
Lytton Springs	735
Manford	229
McMullen	16
Medina	22
Mirando	14,235
Normanna	25
Pettus	8,259
Saxet	40
Somerset	1,354
White Point	45
Yoast	275
Total Southwest Texas	87,885
Week ending December 6	91,049
Decrease	3,164

Laredo District

Of the 12 new locations made in the Laredo district last week 5 are in the Escobas-Muckelroy Pool and 2 in the Killam-Cuellar Pool and the other 5 were scattered over the district, some of them wildcats. Southern Oil Co. which has one well in the north end of the Cole Field in Duval County which came in originally as a gas well and is now making considerable oil is starting another test, the No. 2 King-Harper in Survey 323.

In the central part of Zapta County National Oil Co. is starting a new test. This is south of where the company recently got several good small showings of both oil and gas and came near making a well.

There are two new tests in northern Duval County. Al Buchanan is starting the No. 1 Welder-Wood on Survey 215 several miles northeast of the Schoolfield-O'Byrne Pool.

Magnolia is starting a new wildcat test in northern Duval in Survey No. 136 which is the next survey west of No. 135 in which E. R. Thomas (Frasher & Schoolfield) brought in the No. 1 Duval Land Co. which started off at the rate of about 500 bbls. a day and extended the Schoolfield-O'Byrne Pool 1½ miles south and west. Magnolia's location is in the northeast corner of Survey 136 and is the No. 1 Wilson.

Magnolia's No. 1 Edge-Hahl in Survey No. 63 which is about 4 miles northeast of the Schoolfield-O'Byrne Pool is down 4,540 feet and has had no showings since it got salt water with a little oil and gas at 2,383-86 feet, the same sand that is producing in the Schoolfield-O'Byrne Pool.

Northwest of the Schoolfield-O'Byrne Pool in the new S. R. C. Pool which thus far consists of only the discovery well. The Texas Company is drilling a few hundred feet to the northeast of the discovery well past the pay horizon without getting the pay which should have been found at about 1,750 feet. They have decided to keep on going and are now down below 1,900 feet. Vacuum Oil Co.'s test in Survey 280 about 5 miles southwest of the discovery well has been held up for lack of water to drill with and

(Continued on Page 128)

WILDCAT OPERATIONS IN SOUTHWEST TEXAS

BLANCO COUNTY

Company, farm and location—	Remarks:
H. L. Lewis' No. 1 Glasscock, moving in to drill on leases out of the Rodson block north of Blanco City	T. D. 350 ft.; drlg.
Hardy-Sitton's No. 1 McMillan	T. D. 700 ft.; drlg.
Liles-Adams et al's No. 1 Stanford, 150 ft. to S line, 1,420 ft. to E line of James Stanford's No. 155	T. D. 660 ft.; standing.
McCleary et al's No. 1 Schenling, 900 ft. to SE line. 600 ft. to S line of J. A. Rouse No. 118 Sur., 4 miles SW from Blanco City	T. D. 550 ft.; shut down.
J. R. Meek's No. 1 Walker, 360 rds. from W line, 482 rds. from S line of 375-ac. tract in Sur. No. 23	T. D. 985 ft.; fishing.
G. Rosenfield's No. 1 Hohenberger, 800 ft. to W line, 1,250 ft. to N line, Sur. No. 94	T. D. 375 ft.; standing.

BASTROP COUNTY

Pacific Oil & Gas Co.'s No. 1 J. M. Litton, 150 ft. N and W lines of tract	T. D. 2,465 ft.; drlg. in Edwards.
Majestic Pet. Co.'s No. 1 J. M. Breeding, 160 ft. from N line, 1,020 ft. from W line of 200-ac. tract, 940 varas from W line, 1,225 varas from S line of M. Andrews Sur., 13 miles W from Smithville	T. D. 375 ft.; standing.
Humble Oil & Ref. Co.'s No. 1 Jones, 450 ft. from S line and 150 ft. from N line of farm, Jose A. Navarro Sur.	Rigging up.
R. S. Bolling's No. 1 McWilliams, 150 ft. from N line, 1,111 ft. from W line of Wm. McWilliams tract, Glasscock Sur.	T. D. 2,240 ft.; shut down.

BROOKS COUNTY

Ed East's No. 3 B. Garcia, 150 ft. from N and W lines of Blk. 5, Share A-1, Las Mastena y Gonzalene grant	T. D. 500 ft.; drlg.

BEE COUNTY

William F. Morgan and Independent Oil & Gas Co.'s No. 1 Quincy, C. Blk. 9 of 11,000-ac. Quincy Subd. of Bee County	T. D. 5,940 ft.; drlg.
Hurlbut et al's No. 1 Mrs. D. Chestnut	T. D. 5,010 ft.; shut down.
E. S. Price's No. 1 Weiss, 200 ft. each way out of NW cor. of B.&B. Sur.	T. D. 4,423 ft.; preparing to swab.
E. S. Price's No. 2 Weiss, 900 ft. due SW of No. 1 Weiss, B.&B. Sur.	T. D. 4,462 ft.; circulating mud.
E. S. Price's No. 3 Weiss, 900 ft. due NE of No. 1 Weiss.	Location.
Moody-Seagraves Producing Co. and Independent Oil & Gas Co.'s No. 1 Welder, 6,280 ft. from S line, 8,150 ft. from E line of Welder tract, Henry Eyles Sur.	T. D. 4,312 ft.; drlg.
Cosden Oil Co.'s No. 1 Stoltzfus, 2,310 ft. S and E lines of Sec. 14, Rangley Subd. of C. Miller ranch, Uranga Sur.	T. D. 4,500 ft.; shut down.
Humble and Hurlbut et al's No. 1 J. C. Wood, 150 ft. from NW line, 1,144 ft. from SW line of P. T. Irrigation Co.	T. D. 5,077 ft.; standing.
The Texas Company's No. 1 McCampbell, 150 ft. from N and E lines of 161-ac. tract, R. Pena Sur.	Location.
Simms Oil Co.'s No. 2 Holzmark, 660 ft. N and 20° E of No. 1, T. York Sur.	T. D. 3,700 ft.; coring.
Rowan and Hope's No. 1 Goree, 600 ft. S, 300 ft. W Lot 4, T. B. Barton Sur.	Derrick.

(Continued on Page 121)

SOUTHWEST TEXAS PROVEN AREAS

DOBROWOLSKI POOL—BEXAR COUNTY

Company, farm and location—	Remarks:
Morgan Bros.' No. 3 Masterson, 300 ft. S of No. 2 Masterson, Miguel Gortaris Sur.	T. D. 550 ft.; set csg.
F. H. Eckert's No. 1 Dobrowolski, 400 ft. from W line, 150 ft. from S line of lease, Sur. No. 52	Location.
W. R. Swearingen's No. 2 Halberdier, 300 ft. SE of No. 1 J. Perege Sur.	T. D. 460 ft.; standing.
A. J. Swearingen's No. 6 Sandemer, 600 ft. S of No. 1, M. Manchaca Sur.	Location.
A. J. Swearingen's No. 7 Sandemer, 300 ft. S of No. 6, M. Manchaca Sur.	Location.

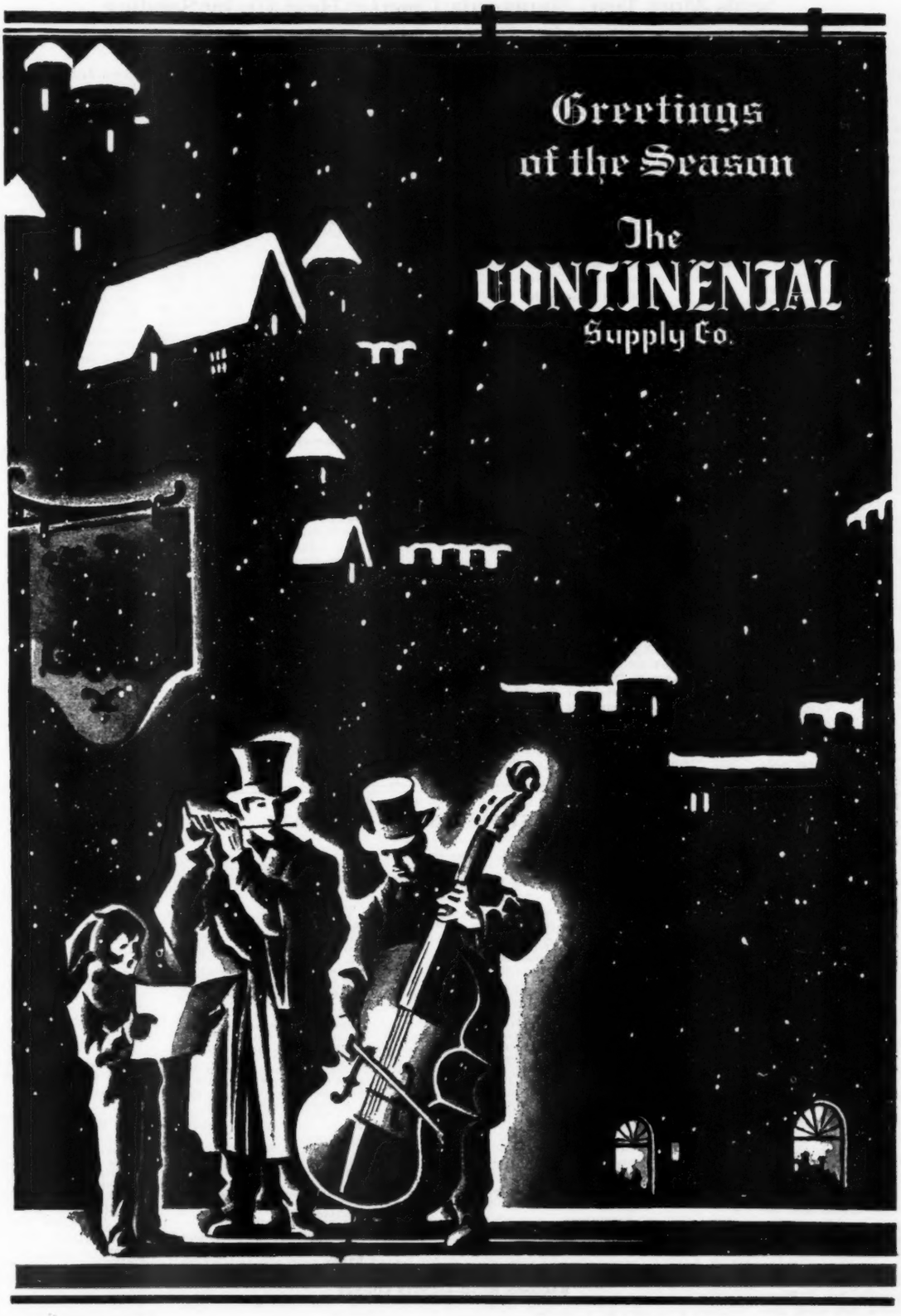
DARST CREEK FIELD—GUADALUPE COUNTY

Gulf Production Co.'s No. 6 Tadlock, 150 ft. N line of lease, 300 ft. E of No. 4	T. D. 842 ft.; drlg.
Gulf Prod. Co.'s No. 12 Dix-McKean, 450 ft. out of NW cor. of lease	T. D. 2,565 ft.; comp. for 680 bbls.
Gulf Prod. Co.'s No. 13 Dix-McKean, 300 ft. from No. 14, 150 ft. from E line	T. D. 2,589 ft.; setting csg.
Gulf Prod. Co.'s No. 14 Dix-McKean, 300 ft. from No. 5, 150 ft. from E line	T. D. 2,578 ft.; setting csg.
Gulf Prod. Co.'s No. 10 Posey-Baker, direct offset to No. 4 Annie Knodel of Magnolia Pet. Co.	T. D. 2,158 ft.; drlg. chalk.
Humble Oil & Ref. Co.'s No. 1-B Sue Denman, 150 ft. from the N and W lines of lease, in the extreme NE cor. of the J. C. Darst Sur.	T. D. 2,653 ft.; comp. for 40 bbls., pumping.
Louisiana Oil & Refining Co.'s No. 5 Dix-McKean, 450 ft. SW line of lease, 385 ft. S of No. 6	T. D. 2,525 ft.; comp. for 1,170 bbls.
Louisiana Oil & Refining Co.'s No. 6 Dix-McKean, 450 ft. SW line and 980 ft. NW line of lease	T. D. 2,516 ft.; comp. for 1,730 bbls.
Magnolia Petroleum Co.'s No. 15 Thomas-Dix, offset to No. 4 Klein	T. D. 2,615 ft.; comp. for 500 bbls. pumping.
Magnolia Petroleum Co.'s No. 5 Klein	T. D. 2,560 ft.; waiting on cement.
Magnolia Petroleum Co.'s No. 4 Klein, 300 ft. W of No. 1, 150 ft. from NW line of lease, Robinson Sur.	T. D. 2,634 ft.; preparing to pump.
Magnolia Petroleum Co.'s No. 7 Rand Miller	T. D. 150 ft.; drlg.
The Texas Company's No. 9-A Knoblock, 450 ft. from NE line, 600 ft. from SE line of lease, Robinson Sur.	Location.
The Texas Company's No. 1 Appling, 180 ft. from S line, 450 ft. E of NE cor. of Alexander Sur. in the Hodges Sur.	T. D. 2,605 ft.; dry and abnd.
Trinity Drillers No. 2-B Penn-Miller, 150 ft. out of SW cor of lease	T. D. 2,616 ft.; comp. pumping 300 bbls.
F. L. Thomson's No. 2 Posey, 25 ft. from NW line, 300 ft. from No. 1	Location.

CHAPMAN POOL—WILLIAMSON COUNTY

W. D. Anderson's No. 6-A T. P. Simmons	Rig up and shut down.
W. D. Anderson's No. 8 M. V. Lawrence	Location.
Birdwell et al's No. 1 Simmons, H. Owens Sur.	T. D. 1,710 ft.; drlg.
Bartlett & Wilson's No. 2 R. E. Stewart	T. D. 790 ft.; standing.
Bartlett & Wilson's No. 1 R. E. Stewart	T. D. 741 ft.; standing.
Chapman et al's No. "D" 1 Abbott	Location.
Chapman et al's No. "D" 2 Abbott	Location.
Chapman et al's No. "D" 5 Abbott	Location.

(Continued on Page 122)


Greetings
of the Season
The
CONTINENTAL
Supply Co.

Moss Bluff Wildcat Extends Production

Further Important Extensions Made at Refugio. Shepherds Mott Test, Matagorda County, Held Up by Sanding

By Neil Williams
Staff Correspondent, Gulf Coast Fields

HOUSTON, Tex., Dec. 15.—A 4,500-foot extension of production of Moss Bluff, Liberty County, was made as one of the chief developments in Gulf Coast field operations the past week. Further important extensions were made in the deep horizons at Refugio. Shepherds Mott, Matagorda County, which at the close of the preceding week gave indication of opening a new field with the completion of a wildcat producer now is on the indefinite list following the sanding up of the well and collapse of the casing when screen hung up while being pulled. Operations generally over the Gulf Coast continued at low ebb but new locations the past week were more than in any similar period for some time.

At Moss Bluff, Humble Oil & Refining Co.'s No. 1 Sergent, a wildcat on the northeast flank of the dome and approximately 4,500 feet to the northward from the present production on the east side, came in the middle of the week flowing 181 bbls. on a 24-hour gauge on a five-sixteenths-inch choke. With bottom of the hole at 5,860 feet the well is producing with 40 feet of screen set 77 feet off bottom. The setting was 77 feet of blank, 20 feet of screen, 20 feet of blank and 20 feet of screen. The oil is 37 gravity at a temperature of 70°. Tubing pressure is 150 pounds and casing pressure 250 pounds.

Fourth Producer on Dome

This is the fourth producer at this dome. The discovery well, Humble Oil & Refining Co.'s No. 6 Sterling, on the east side, was completed in January of this year as an 800-bbl. well from a total depth of 5,666 feet. This was followed by Gulf Production Co.'s No. 1 McFaddin, a north offset, flowing 1,000 bbls. daily at 5,831 feet and Gulf's No. 2 McFaddin, 400 feet further north, a 500-bbl. well. All these wells have been shut in since completion with the exception of a small amount run by the Gulf for fuel. The field at present is without an outlet although Humble Pipe Line Co. recently laid a section of a proposed line from Barbers Hill to the field. That section was through swamp land and was laid to take advantage of a time when the swamp was dry. The remainder of the line, a few miles, is to be laid when development of the field justifies it.

Location of the new Moss Bluff wildcat is 7,875 feet west and 50 feet south of the northeast corner of the James McFaddin Survey. Following its completion, Gulf Production Co. made location for a north offset, its No. 1 Robertson McDonald, and also a location for its No. 3 McFaddin, north of other producing wells. Several other interesting wildcats have been drilling at various parts of the Moss Bluff Dome, including Shell Petroleum Corp.'s No. 2 Herff on the southeast flank, and Humble's No. 1 Hylton and No. 1 Breeding on the northwest, all in undrilled territory. The Breeding test, B. M. Spink Survey, has proved a failure, being abandoned the past week after drilling to 7,064 feet. This test, being too far out from the dome, a location has been made for No. 2 Breeding, 500 feet to the east. Humble's Hylton test is down 6,544 feet with drill stem stuck. Shell's No. 2 Herff is in a sand which tested salt water and now is pulling screen to deepen.

Shepherds Mott Well

The status of Cockburn Oil Corp.'s No. 2 Hawkins, which came in the preceding week as the discovery well of Shepherds Mott, Matagorda County, now is somewhat indefinite. The well sanded up after flowing a short time, and, when screen was being pulled to work over, casing collapsed around 3,100 feet. Operations have been suspended until after the holidays. This well, the third drilled by these operators at Shepherds Mott, is in a sand at a total depth of 5,244 feet. Samples of the oil tested 37.2 gravity (corrected). Matagorda County's other wildcat hot spot at Citrus Grove, where Empire Gas & Fuel Co.'s No. 1 Boker blew out several weeks ago, is at a standstill. Efforts now are being centered on backing off stuck drill stem. The latter test is in gas sand at 6,250 feet.

Refugio Extension

Following an important extension of the 3,700-foot oil sand at Refugio a mile to the west by L. L. Smith's No. 1 Rogers, James Powers Survey, two weeks ago, an additional substantial extension of the 5,400-5,500-foot sand was made the past week to the southwest of the deep sand area on the east side of the Refugio district. This was Moody-Seagraves Producing Co.'s No. 1-A St. John, 1,700 feet west and 200 feet south of the NE cor. of the St. John tract, slightly over a mile to the southeast of the nearest Refugio production. This well, in the sand at 5,491-5,500 feet, with 15 feet of screen, is flowing 400 bbls. daily on a 2-inch line. It had been drilled to a total depth of 6,644 feet and plugged back to this sand.

There were three other completions at Refugio during the week. E. M. Jones' No. 2 Mitchell, a wildcat deep producer, 1,500 feet to the southwest of the deep sand area, completed recently as a small well at 5,441 feet, was worked over and came in flowing 147 bbls. daily on a half-inch choke with 39 feet of screen at 5,441 feet. Phillips Petroleum Co. (Independent) made a dry gas well of 2,200 pounds pressure in its No. 1 O'Brien, Lot 14, in the extreme north end of the Refugio area and over a mile from deep production. This well, formerly abandoned as dry at a total depth of 6,643 feet, was plugged back to a sand at 6,246-53 feet. It has been shut in. Moody-Seagraves Producing Co.'s No. 1 Linney, Block 41, east edge of the town lots, is flowing 215 bbls. daily of "gasoline" with 20 feet of screen at a total depth of 6,458 feet. The well has a pressure of 2,300 pounds.

Locations for two new tests were made in the extension district opened two weeks ago by L. L. Smith's No. 1 Rogers, a mile west of the old field. These included Houston Oil Co.'s No. 15 Pratt-Hewitt-Rooke, an offset to the extension discovery, and L. L. Smith's No. 2 Rogers, 400 feet due north of No. 1. The extension well, which had an initial of 1,100 bbls. and which had been producing around 400 bbls. daily, has sanded up and is being worked over at this time. Locations also were made at Refugio for four other new operations and with work starting up on a number of others which have been standing increasing activity in that district is in evidence.

Barbers Hill

On the west flank of Barbers Hill, Sinclair Oil & Gas Co.'s No. 2 Smith, the fourth well in that pool, was completed flowing 800 bbls. daily with 138 feet of screen at 5,674 feet. It is on a five-eighths inch choke with pressure of 175 pounds. This well is a location north of No. 1 Smith, which in turn was a west offset to the west flank discovery well, Sun Oil Co.'s No. 1 Winfree. Humphreys Corp.'s No. 1 Winfree, north offset to the Sun Winfree well, is the only other drilling test in that area although Sun Oil Co. has made location for No. 1 Smith, approximately 1,000 feet to the south and between this pool and that on the southwest flank.

Yount Lee Oil Co.'s No. 3 Fisher, southwest flank of the Barbers Hill Dome, was put on the pump, making 400 bbls. of fluid, 10 per cent oil, from sand at 6,676 feet. The hole originally had been drilled to 7,024 feet. In the same area, Humble Oil & Refining Co. is abandoning its No. 6 Meyers fee after testing salt water. Total depth is 6,609 feet.

Other Completions

Other completions of the week included Union Sulphur Co.'s No. 763 fee, Sulphur, La., flowing 300 bbls. daily with one joint of screen at 4,727 feet; The Texas Company's No. 2 fee, west flank of Humble, 350 bbls., 4,397 feet; and Humble Oil & Refining Co.'s No. 10 Woodley, Raccoon Bend, Austin County, 400 bbls., 3,488 feet. The Texas Company's No. 2 Stark, Port Neches, was put on the pump but pumped off in two hours after making 10 bbls. This is in a sand at 4,114-44 feet, to which it plugged after drilling to 6,045 feet. It is 1,500 feet west of production.

Sunshine Oil Co.'s No. 1 Collins, A. Viescha Survey, Polk County wildcat, so far has been disappointing. The test, which gave promise of developing important production in sand at 3,323 feet where 92 feet of 4½-inch screen was set, has failed to flow and at present is standing with 150 feet of fluid in the hole. Operators have not determined whether to try to put the well on the pump or attempt to deepen it. This well is 800 feet west and 150 feet south of the same company's No. 1 Chase, which for a time pumped a small amount of oil.

Daily Average Production

Daily average production of the pools in the Gulf Coast area for the week ending December 13 follows:

SOUTHEAST TEXAS

Allen	21
Barbers Hill	24,239
Batson	1,065
Big Creek	3,167
Blue Ridge	1,578
Brenham	148
Boling	866
Clay Creek	1,480
Damon Mound	679
DeWalt	12,186
Esperson (Sheeks)	2,936
Fannett	532
Goose Creek	4,697
Hankamer	2,282
High Island	879
Hull	7,764
Humble	13,538
Lost Lake	362
Markham	204
Moss Bluff	80
Mykawa	295
Nash	219
North Dayton	1,086
Orange	2,013
Orchard	1,984
Pierce Junction	10,316
Port Neches	1,696
Raccoon Bend	8,618
Refugio	27,395
Rockland (Jasper County)	15
Saratoga	1,258
Sour Lake	2,160
South Liberty	2,889
Spindletop	13,840
West Columbia	4,588
Total Southeast Texas	156,976
Week ending December 6	154,874
Increase	2,102

SOUTH LOUISIANA

Anse La Butte	32
Bayou Blue	140
Bayou Boullion	130
Black Bayou	1,130
Edgerly	383
Jennings	1,881
Hackberry	3,975
Lake Barre	2,114
Lake Pelto	92
Lockport	3,988
Port Barre	2,263
Sorrento	48
Starks	670
Sulphur	2,100
Sweet Lake	1,151
Vinton	5,075
Welsh	121
White Castle	1,039
Total South Louisiana	26,332
Week ending December 6	28,010
Decrease	1,678
Total Gulf Coast	183,308
Week ending December 6	182,884
Increase	424

GULF COAST FIELDS AND WILDCATS

Week Ending December 13

All Rotary

BARBERS HILL—CHAMBERS COUNTY

Mills Bennett Prod. Co.'s No. 1-B Barber, north	Drlg. salt 3,078 ft.; top salt 1,395 ft.
Mills Bennett Prod. Co.'s No. 10 Barrow (workover)	Oil sand 5,620 ft.; set csg. 5,554 ft.
Mills Bennett Prod. Co.'s No. 3 Gulf Fisher, south	Drlg. lime rock 3,197 ft.
Mills Bennett Prod. Co.'s No. 1 Gulf-Smith	Building derrick.
Humble Oil & Ref. Co.'s No. 6 fee, west	Total depth 6,609 ft.; abandoned.
Humphreys Corp.'s No. 2-B Barber, north	Drlg. anhydrite 1,252 ft.
Humphreys Corp.'s No. 6-A Barber, northwest	Drlg. sandy shale showing oil 5,358 ft.
Humphreys Corp.'s No. 1 Louise Fitzgerald, north	Drlg. salt 3,182 ft.
Humphreys Corp.'s No. 1 Morgan (workover)	Total depth 6,404 ft.; cmtd. to sidetrack 6,155 ft.
Humphreys Corp.'s No. 10-A Kirby (workover)	Drlg. sand and shale 3,879 ft.
Humphreys Corp.'s No. 1 Winfree, west	Drlg. sand and lime 5,177 ft.
McAlbert Oil Co.'s No. 2-A Higgins, southeast	Drlg. hard sand and lime 2,139 ft.
Republic Prod. Co.'s No. 3 Kirby (workover)	Total depth 6,700 ft.; will pump.
Sinclair Oil & Gas Co.'s No. 2 Smith, west	Set 138 ft. screen in sand 5,555-5,674 ft.; comp. flowing 800 bbls. 31.8 gravity oil on ⅝-in. choke.
Sun Oil Co.'s No. 5 Chambers (workover)	Set 3 joints screen 5,595 ft.
Sun Oil Co.'s No. 7 Chambers, south	Drlg. shale and lime 3,793 ft.
Sun Oil Co.'s No. 1 Smith, west	Derrick.
Sun Oil Co.'s No. 12 Wilburn fee, east	Drlg. shale 5,075 ft.
Sun Oil Co.'s No. 13 Wilburn fee, east	Waiting on orders; fishing for milling tool.
The Texas Company's No. 1 Williams, southwest	Total depth 6,724 ft.; cmtd. 6⅝-in. csg. 6,609 ft.
The Texas Company's No. 1 Winfree, west	Drlg. hard lime and shale 4,992 ft.
Yount Lee Oil Co.'s No. 1 Hindman, southwest	Set 188 ft. 5-in. screen 6,531 ft.; swabbing.
Yount Lee Oil Co.'s No. 17 Chambers, south	Drlg. salt 1,750 ft.
Yount Lee Oil Co.'s No. 3 Fisher, southwest	Total depth 7,024 ft.; comp. pumping 40 bbls. net oil 90% salt water.
Yount Lee Oil Co.'s No. 6 Phillips, east	Waiting on orders.
Yount Lee Oil Co.'s No. 1 Winfree, west	Drlg. shale and lime 3,850 ft.

RACCOON BEND—AUSTIN COUNTY

Humble & Valley's No. 2-B Hardy	Drlg. shale 2,409 ft.
Humble & Valley's No. 9 Mueller	Derrick.
Humble & Valley's No. 7 Payne	Derrick.
Humble & Valley's No. 8 Payne	Derrick.
Humble & Valley's No. 6 Saunders	Cmtd. surface csg. 58 ft.
Humble & Valley's No. 3 Sherrod	Derrick.
Humble & Valley's No. 6 Woodley	Derrick.
Humble & Valley's No. 7 Woodley	Derrick.
Humble & Valley's No. 8 Woodley	Derrick.
Humble & Valley's No. 9 Woodley	Derrick.

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Hobbs Pool is Extended to Southwest

Eddy County Gets 1,000-Bbl. Well. Weld County, Colorado, Well Gauges 360 Bbls. in 24 Hours After Deepening

By Tolbert R. Ingram
Staff Correspondent, Rocky Mountain Area

DENVER, Colo., Dec. 15.—Another extension of the Hobbs Pool in New Mexico was reported in the Continental Oil Co.'s No. 1-C State, on the southwestern side, which flowed at the rate of 19,430 bbls. a day. The Midwest Refining Co.'s No. 29 Turner, nearly a mile east of production, flowed 180 bbls. in 18 hours from the Bowers sand, and the National Securities Oil Co.'s No. 1 Linam, 4 miles west of the nearest producer, had shows of oil and gas. One new location was made for an outside well by the Amerada Petroleum Corp. The Ohio Oil Co.'s No. 1 State-McDonald, in the Eunice district, is estimated at 20,000,000 feet of gas after plugging back. The Getty Oil Co. has a 1,000-bbl. well in the Twin Mounds Pool in Eddy County and the Murchison Oil Co. has a small gas well in San Juan County.

In Colorado, the Platte Valley Petroleum Co.'s discovery on the Greasewood Dome gauged 360 bbls. in 24 hours after being deepened 30 inches. Two new operations are being started on the Berthoud Dome following the making of a contract for the sale of the gas. One new operation on the Johnny Creek structure in Las Animas County is getting under way.

Considerable 45 gravity oil is standing in the Badger Basin wildcat of the Resolute Oil Co. in Park County, Wyoming, at a depth of 8,255 feet. The Texas Production Co. has a 270-bbl. completion at Oregon Basin and the Continental Oil Co. has a small completion in Elk Basin.

NEW MEXICO

Hobbs Pool—Lea County

Pipe line runs from the Hobbs Pool for the last half of November aggregated 471,019 bbls. against an allowable output under proration of 448,005 bbls., a net average of 23,014 bbls. Runs from July 10, when proration went into effect, to November 30, inclusive, were 4,676,450 bbls. against an allowable outlet of 4,709,734 bbls., a net shortage of 33,670 bbls.

One completion was reported in the Continental Oil Co.'s No. 1-C State, C NW SE, Section 5-19-38, which will prove some additional territory on the southwestern side for big production. An Associated Press dispatch says that at a total depth of 4,175 feet it was rated at 19,430 bbls. in 24 hours. Confirmation of this figure has not yet been received, but if it proves correct, it is important. It is one-third of a mile west of The Texas Company's No. 2 McKinley, the nearest well in that direction, which was given a potential of 9,817 bbls., and half a mile south of the Sun Oil Co.'s No. 3 McKinley, which gauged at the rate of 8,812 bbls. a day. Two offsets to the Continental well are being drilled on the north by the Sun Oil Co. and the northwest by the Midwest Refining Co. The group of three wells are all outside locations. The Midwest's offset, No. 26 McKinley, C SE NW, Section 5-19-38, topped the pay at 4,000 feet and was drilled to 4,208 feet, but had not been gauged at last reports. The Sun company's offset, No. 4 McKinley, C SW NE, Section 5-19-38, is bottomed at 3,932 feet and is running 7-inch. It topped brown lime at 2,795 feet and had first gas at 2,806 feet and first oil at 3,170 feet.

One new location was reported in the Amerada Petroleum Corp.'s No. 1-C State, NE cor., Section 36-18-37, an offset on the south to the Humble Oil & Refining Co.'s No. 2-A State, a recent completion. This is the first new location for several weeks.

Two drilling wells in the Hobbs area attracting attention are the National Securities Oil Co.'s No. 1 Linam, NE SE SW, Section 33-18-37, 4 miles west of the nearest producer in the Hobbs Pool, and the Midwest Refining Co.'s No. 29 Turner, C SW SW, Section 34-18-38, in the townsite of Hobbs and nearly a mile east of the nearest producer. No. 1 Linam is drilling at 3,060 feet in anhydrite and lime. It had first gas at 2,995 feet, a show of oil at 3,040 feet and a little more gas at 3,060 feet. It topped brown lime at 2,956 feet and elevation is 3,706 feet. It is running approximately 100 feet lower on top of the lime than Humble Oil & Refining Co.'s No. 3-A State in the NW cor. SE, Section 25-18-37, the most westerly well in the pool. Midwest's No. 29 Turner, on the east side, is bottomed at 3,340 feet where the rig was damaged by fire. At this depth it made 180 bbls. in 18 hours from the Bowers sand. This well will prove up an important extension on the eastern side of the pool. The rig is being torn down to rebuild.

Drilling Operations

Routine operations include the following:

Cecil Bordages' No. 1 Hughes, C S half, Section 27-19-38, is bottomed at 4,012 feet and is preparing to drill new hole outside the parted 8¼-inch casing at 2,830 feet. There are three strings of tools lost inside the casing.

Landreth Production Co.'s No. 1-C State, NE cor. NW, Section 6-19-38, half a mile west of production, is drilling at 1,950 feet in salt and anhydrite. Top of anhydrite was at 1,605 feet and elevation is 3,642 feet.

Midwest Refining Co.'s No. 11 Thorpe, C NE NW, Section 10-19-38, is drilling at 2,840 feet in anhydrite. It bottomed salt at 2,650 feet. The same company's No. 11 State, C NE NW, Section 9-19-38, is drilling at 2,795 feet in anhydrite.

The Texas Company's No. 3-C State, C SW NE, Section 25-18-37, is drilling at 4,000 feet.

Tidal Oil Co.'s No. 5 Grimes, NW SE NE, Section 29-18-38, is drilling at 1,610 feet in anhydrite. Top of anhydrite was at 1,570 feet and elevation is 3,650 feet.

Eunice Area—Lea County

Ohio Oil Co.'s No. 1 State-McDonald, SW NW SW, Section 15-22-36, after plugging back from 3,904 feet to 3,875 feet and rigging 7-inch at 3,630 feet, is flowing open and is estimated at 20,000,000 feet of gas with sprays of oil. Continental Oil Co.'s No. 1 William Meyers, SW cor. NW, Section 28-22-36, is drilling out cement in 3-inch tubing at 3,493 feet to bring back the gas after plugging back from a total depth of 4,304 feet. In the Eunice Pool, Shell Petroleum Corp.'s No. 1 Coleman, NW cor. SE, Section 17-21-36, an offset on the south to Tidal Oil Co.'s No. 1 Coleman, is drilling at 3,386 feet in anhydrite. It topped brown lime at 2,881 feet and had first gas at 3,016 feet. There was an increase at 3,233 and 3,325-42 feet. It tested 23,000,000 feet in 24 hours at 3,242 feet. Continental Oil Co.'s No. 1-A Lockhart, NE cor., Section 18-21-36, half a mile northwest, is drilling at 1,700 feet in anhydrite. It topped salt at 1,370 feet and anhydrite at 1,290 feet. Same company's No. 2 A. E. Meyers, SE cor. NW, Section 17-21-36, cemented 9⅝-inch at 2,979 feet. 2 feet in brown lime. Atlantic Oil Producing Co.'s No. 1 Coleman, SW NE NW, Section 17-21-36, is digging rathole.

Lea Pool—Lea County

There has been no new drilling in the Lea Pool for about a year, but pipe line runs are holding close to 3,000 bbls. daily. Snowden & McSweeney's No. 1 State, NW cor. SW, Section 1-21-33, an edge well which pumped 110 bbls. of fluid when completed last March, of which 25 per cent was water, finally went to water entirely and is being abandoned at a total depth of 3,816 feet.

Caprock Area—Lea County

Western Drilling & Engineering Co.'s No. 1 Bridges, SE cor. NW, Section 17-17-34, is drilling at 3,440 feet in anhydrite. It topped brown lime at 3,040 feet.

Lovington Area—Lea County

Galt, Brown and others' No. 1 State, SW NW NW, Section 9-15-35, is drilling at 4,105 feet in anhydrite and red rock.

Eddy County

Getty Oil Co.'s No. 6 Dooley, C NW SW, Section 24-20-29, Twin Mounds Pool, in Eddy County, encountered a pay at 1,353 feet in lime and began flowing by heads and is estimated at 1,000 bbls.

This well, midway between two producers a half mile to the north and the same distance to the south, was started as a deep test to go, possibly, to 6,000 feet. Whether the well will be completed and another hole started has not been announced. The oil is a heavy black crude. Lockhart & Co.'s No. 1 Livingston, C SW SW, Section 23-24-28, in the Pearce Canon district, is drilling at 2,253 feet in salt. It topped salt at 2,250 feet at which depth 8¼-inch was cemented. Elevation is 2,915 feet. R. D. Compton and others' No. 1 Vandergriff, NW cor. NE, Section 33-19-30, Twin Hills district, is shut down at 1,725 feet in gypsum and red shale for repairs. Leonard & Levers' No. 5 State, Section 21-17-29, Maljamar district, spudded on November 25 and is drilling at 810 feet in anhydrite. It cut salt at 301-654 feet and set 8¼-inch at 659 feet.

Quay County

Hudson Oil Co.'s No. 1 Wetzel, SE SW, Section 29-12n-33, is shut down at 50 feet.

De Baca County

Matador Oil Co.'s No. 1 Wood, NE SW SW, Section 6-4n-20, which has been shut down at 3,001 feet in lime for several months, is preparing to resume.

Curry County

Jack Williams' No. 1 Ford, C SW, Section 26-8n-36, is a location. Cockerill and others' No. 1 Bruner, C N half. NE, Section 15-2n-31, is reported shut down at 960 feet.

Chaves County

Warman Oil Trust's No. 1 Seibert, NE. Section 27-13s-24, is drilling at 1,890 feet in lime and shale.

Valencia County

Thomas B. Harlan and others' No. 2 Harlan Ranch, NW cor., Section 5-6n-2e, was lost at 4,205 feet when the rotary drill stem became frozen. Rig was skidded and No. 3 is drilling at 1,000 feet.

San Juan County

The Murchison Oil Co.'s No. 4 Angel Peak, NW SW SE, Section 11-28-11, Kutz Canon district, was completed in the Picture Cliff at below 1,861 feet and shut in. It was not gauged, but was estimated at 3,000,000 feet. Same company's No. 5, NE NW, Section 11-28-11, is rigging up cable tools at 1,784 feet to drill in. Rotary rig has been moved to SE NW SE, Section 34-29-11, for No. 2 on the Garland permit. Kutz Canon Oil & Gas Co.'s No. 1 Day, SW cor., Section 20-28-10, is drilling out cement after setting 6¼-inch on top of sand at 2,012

(Continued on Page 131)

LARGEST LIGHT CRUDE PRODUCER YET STRUCK IN TURNER VALLEY

By Victor Lauriston
Staff Correspondent, Canadian Fields

CHATHAM, Ontario, Dec. 13.—Following the taking over of the natural resources of Alberta by the provincial government, the latter is issuing official figures of the crude production of the various Alberta fields. Figures for October, the first month under the new regime, show a new record production for Alberta, aggregating 159,860 bbls. This figure compares with a total of 129,007 bbls. for September, 1930, which represents the previous record, and comes very close to equalling the entire production of the province for the year 1925, which was 168,643 bbls. Figures for October, 1930, also show a marked increase over the same month in 1929, the details being:

	1929	1930
Naphtha	94,940	150,040
Light crude	7,505	9,100
Heavy crude	1,090	720
Total	103,535	159,860

The major portion of the October production came from the Turner Valley Field. The Red Coulee Field, which was not producing a year ago, delivered 6,615 bbls. of light crude in October, while heavy crude production included 485 bbls. from Wainwright and 235 bbls. of intermittent production from Ribstone, the latter field being largely shut in.

Deliveries from the Turner Valley Field in November aggregated 132,287 bbls., representing a decrease of 11,735 bbls. from the October production. The latter, amounting to 144,022 bbls., established a new record for the field. November deliveries to Imperial Oil Ltd., were 104,710 bbls., compared with 109,413 bbls. in October; and deliveries to the Regal refinery in November were 27,577 bbls., compared with 34,559 bbls. in October. The November daily average for the field was 4,410 bbls., as against 4,646 bbls. in October and 3,419 bbls. in September. A feature of the Imperial production was the large delivery from Miracle Oils' No. 1, amounting to 9,517 bbls., while the Mercury wells, in the same area, delivered 7,000 bbls. The Home wells in Section 20-19-2w5 delivered 13,139 bbls. in November against 15,790 bbls. for October.

For the 11 months ending November 30, the Turnery Valley Field aggregated 1,151,970 bbls., a new record for annual delivered production in Canada.

Imperial Drilling

In the Turner Valley Field, Home Oil Co.'s No. 6, Section 20-19-2w5, will probably take production temporarily from the Home sands at 4,689 feet. Light crude was encountered in this horizon, and production is now being tested. It is unofficially reported that the well made 276 bbls. in 19 hours, making it the largest light crude producer yet struck in the Turner Valley. The four original Home wells are reported producing regularly, and Home's No. 5, which was shot, is being allowed to clean itself out, building up back pressure and allowing the well to blow open. Home's No. 6 will probably take light crude production for some time, and deepen about 500 feet to

(Continued on Page 129)

Deeper Huntington Beach Zone Likely

Strong Gas Pressure, Threatening Loss of Control, Marks Superior's No. 1 Fee. Secrecy Regarding Well Maintained

By L. P. Stockman
Staff Correspondent, California Fields

LOS ANGELES, Calif., Dec. 15.—The Superior Oil Co. focussed the attention of operators on the Huntington Beach Field of Los Angeles Basin a few days ago when its No. 1 Fee, a deep test, showed such a high gas pressure that it almost got beyond control. The significance which attaches to the showing of this well lies in the fact that it tends to indicate the existence of a new deep zone below present known horizons. It is a little too early to say definitely that the Superior's No. 1 Fee will develop commercial production but if the performance of this well during the past week is any criterion of its potentiality we may anticipate another town lot drilling campaign similar to those which have occurred in this and other Los Angeles Basin fields at frequent intervals during the past several years. A high board fence has been erected around the well in question, but, despite the utmost secrecy as to the status of No. 1 Fee, sufficient information has leaked out to justify the statement that a new deep zone has actually been picked up. Attention has been directed to both this well and the Transport Oil Co.'s No. 17 McCaslin on several occasions during the past month or so.

Gas pressure in the Superior's deep test was so strong that the company was obliged to pump in 25 tons of baroid to increase the weight of the rotary drilling mud. A string of 6⅝-inch casing was run in and cemented at 6,998 feet and a test is expected to be made within a short time after the cement has set. If another intensive drilling campaign is precipitated, it will be the third time that Huntington Beach will have occupied the spotlight. The first town lot development occurred in the Huntington Beach Field shortly after its discovery by the Standard Oil Co. in 1920. A second town lot drilling campaign got under way in a subdivided area fronting along the ocean and south of the original town lot section during the latter part of 1926. It is this area fronting along the ocean and south of the Barley Flats section that gives promise of sustaining another intensive drilling campaign. The Huntington Beach Field has produced 172,024,647 bbls. up to the close of October, 1930, which is the equivalent of approximately 60,000 bbls. per acre. Peak production was reached in 1923 when the field produced 34,355,642 bbls. of crude oil. Production declined during the following two years but increased again to 19,064,814 bbls. in 1926 and to 26,344,697 bbls. in 1927, due to the development of a new town lot area. Production has been declining since the secondary peak, reached in 1927, due to a normal decline and the curtailment of production in conformity with the state-wide conservation program.

No. 1 Fee of the Superior, the center of attraction at the present time, is down 7,438 feet with a string of 8⅝-inch landed at 3,865 feet and a 6⅝-inch water string cemented at 6,998 feet. The Transport's No. 17 McCaslin, located a few blocks away, is rotating ahead at 6,995 feet and should consequently pick up the Superior zone in the near future. Because of the depth at which this new deep zone has been picked up, it will be several months before this horizon becomes a factor of any consequence, although a check of present producing wells indicates that the diameter of many of them will permit their being deepened. It is quite probable that several wells will be started down to the new zone within the next 15 days. A. J. Bellaporte has already started making hole and this well, together with the Stevenson Petroleum Corp.'s No. 1 Huntington, the rig for which is now in course of construction, will be carried down as deep tests. The Standard Oil Co. has a group of wells on its Barley Flats lease just west of the town lot area which will undoubtedly be deepened in the event that the Superior develops substantial production.

Coal Oil Point

The Coal Oil Point area of Santa Barbara County, located approximately 3 miles east of the Elwood Field, also occupied a prominent position in the spotlight during the past week because of a rather promising wildcat being drilled in that section by the Bolsa Chica Oil Co. This test has not yet encountered the Vaqueros formation which has proven so productive in the Elwood Field but is expected to break through into these rocks at any time. Gas pressure in the overlying Temblor, through which the well is drilling at the present time, has been increasing from day to day, lending credence to the theory that the Vaqueros will be found productive when encountered. It must be remembered, of course, that this well is still a wildcat and will continue as such until commercial production is actually developed. The gas showings in the Temblor are extremely encouraging, however, and the outcome of this exploratory work will be watched with interest despite the fact that the Bolsa Chica appears to control practically all of the possibly productive acreage. The Bolsa Chica's test at Coal Oil Point is located at the end of a 900-foot pier projecting out into the ocean at right angles from the shore to a point which is roughly in the center of Tideland permit No. 191.

The Prairie Oil & Gas Co. is making preparations to drill a new wildcat on the Rhode Island Estate Lease east of the Erburu Lease of the General Petroleum in the Capitan Field of Santa Barbara County and this wildcat will be watched with interest because of the possibility that it may open up another new field in this area. The General Petroleum has successfully finished five producing wells on the Erburu Lease at Capitan and is at the present time drilling ahead in No. 8, which is scheduled to be a deep test. The Shell has also completed one well in this field but this producer, No. 1 Covarrubias, like most of the General Petroleum's wells, is shut in due to curtailment. The accompanying map shows the relative location of the Prairie Oil & Gas Co.'s Rhode Island Estate Lease with respect to the holdings of the General Petroleum and Shell. This field, discovered by the General Petroleum during the latter part of 1929, yields a 20 gravity crude oil, the average completion depth being around 1,500 feet. Wells completed up to the present time have shown an average initial daily production of approximately 150 bbls.

Santa Barbara Mesa

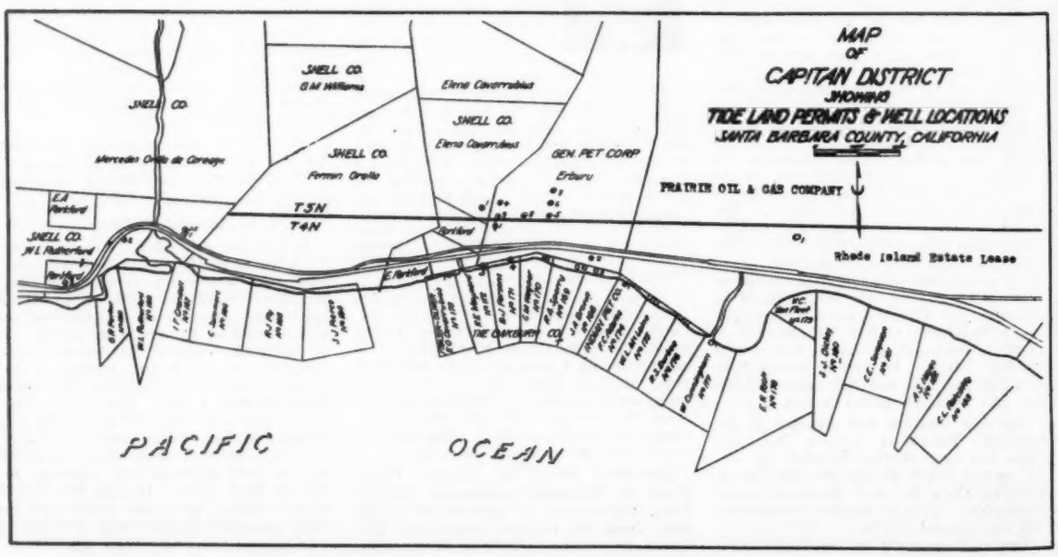
The Palisades Petroleum Co. created considerable comment this week when its No. 2 Meigs was brought in flowing at the rate of 2,000 bbls. per day, as the completion of this new well has resulted in a rediscovery of the Santa Barbara Mesa Field. It will be recalled that considerable drilling was undertaken in the Mesa Field of Santa Barbara County during 1929 following its discovery by the Olympic Oil & Refining Co. Water trouble and the inability to develop commercial production ultimately resulted in the abandonment of all but a few wells. The Valemont Oil Co., under the direction of Bill Rhoads, Palisades Petroleum and a few others, continued exploration work on the assumption that there should be a major accumulation of oil and gas in the vicinity as they were convinced that the original Mesa Field merely represented a minor accumulation presumably separated from the main field by faulting or some other subsurface disturbance. This theory appears to be substantiated on the flow test conducted this week.

No. 2 Meigs was brought in flowing 1,200 bbls. of 20.1 gravity oil and approximately 2,000,000 feet of natural gas per day but it is generally agreed that the well could easily make 2,000 bbls. per day if unlimited storage facilities were available. It is producing from the Vaqueros sand which was picked up at 2,035 feet. The hole was bottomed at 2,116 feet and finished with an 8¼-inch water string landed at 2,004 feet and 150 feet of 5¾-inch liner. Gauges indicate a pressure of 790 pounds on the casing and 620 pounds on the tubing. The substantial production registered by No. 2 Meigs was a complete surprise to those following work in this area as the first well on this lease was only good for approximately 125 bbls. per day on the beam. The new well finished is located on the Meigs estate, which was originally leased by the Palisades Oil Co. and subsequently subleased to the Wells Exploration Co., which drilled the well in conjunction with the former company.

Playa Del Rey

The Playa Del Rey Field of Los Angeles Basin yielded its usual quota of new wells during the past week, and, while there is still a considerable number of incompleted drilling projects under way, those familiar with existing conditions are of the opinion that peak production has just about been reached. The exact time of peak production at Playa Del Rey is really not of primary importance except possibly from an historical standpoint. The vital point in connection with the field's peak is the maximum amount of oil which the field will produce in any 24-hour period and the possible duration of flush production. A check of existing conditions indicates that Playa Del Rey has already reached its peak or should do so in the near future. This indicates that Playa Del Rey has just about exerted its maximum effect on state production and should therefore not cause any further anxiety. Production may show a further limited increase but to all intents and purposes peak production has been reached. During the past month crude oil production at Playa Del Rey has averaged approximately 42,500 bbls. per day and this has only been possible by the completion of a large number of new wells.

The upper, or Del Rey, zone at Playa Del Rey has shown a much smaller decline that the deep Recreation zone, and, while this factor has aided in the maintenance of a relatively stable production during the past several weeks, production would have shown a substantial decline if it were not for the fact that a large number of new wells were completed during the period in question. The completion of several relatively small producers during the past few weeks and a very noticeable drop in the average initial daily production of new wells indicates



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that the period of flush production is drawing to a close. During the past week, for instance, there were a number of new wells finished flowing less than 500 bbls. per day. The Bishop Corp.'s No. 2 Finkle, bottomed at 4,400 feet and finished with an 8⅝-inch water string landed at 3,484 feet, and a 6⅝-inch liner carrying 930 feet of perforated, was only good for 200 bbls. per day upon completion. Beaudette & Dunn's No. 1 Venice was another relatively small well finished this week as it was only good for 350 bbls. per day upon completion at 4,261 feet.

The Balboa Oil Co.'s No. 1 Venice was another small well chalked up this week as this project, finished at 4,180 feet with a 6⅝-inch liner carrying 770 feet of perforated, was only good for 130 bbls. per day. The Blueridge Oil Co.'s No. 3 Stanley, completed at 4,339 feet and finished with a 9-inch water string landed at 3,495 feet, and a 6⅝-inch liner including 823 feet of perforated, tanked 375 bbls. of 23.7 gravity oil per day during the initial 24-hour test following completion. The Considine Oil Co.'s No. 1 Venice, bottomed at 4,690 feet with an 8⅝-inch water string cemented at 3,649 feet, and a 6⅝-inch liner carrying 1,045 feet of perforated, registered an initial daily production of 210 bbls. The El Jemero Oil Co.'s No. 2 Venice is listed as a 200-bbl. completion from 4,224 feet, the oil being relatively clean and testing 23.8°. No. 1 Hunter of the Pacific Coast Properties was another small well finished this week as it was only good for 225 bbls. of clean 24.1 gravity oil per day. This new well, bottomed in the deep Recreation zone at 5,815 feet, was finished with a 4¾-inch liner carrying 200 feet of perforated.

No. 1 Black of the Marcel Oil & Gas Corp. failed to show sufficient kick to result in a natural flow and it was accordingly put on the beam. It registered an initial daily production of 228 bbls. of 23.4 gravity oil from 4,255 feet. The Barnsdall, which is developing the Burke Lease in conjunction with the Cypress Petroleum Co., successfully finished well No. 12 flowing 520 bbls. of 23.1 gravity oil per day. This new well, bottomed at 4,399 feet, was finished with an 11¾-inch water string landed at 3,385 feet

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MAY CARRY MUSKEGON TEST DOWN IN HOPE OF REACHING TRENTON

By Paul A. Elliott

MUSKEGON, Mich., Dec. 13.—Operators of the first deep test in the Muskegon oil field are optimistic again for the first time since the well drilled into the Niagara limestone without striking gas or oil in paying quantities. Discovery of what is believed to be the Cincinnati series at a depth which indicates the possibility of reaching the Trenton limestone, a producer in other fields, at a point several hundred feet higher than was originally calculated was the cause of this optimism.

A streak of red shale was struck at 3,825-45 feet after which the drill went into a blue shale with limestone shells believed to be the upper part of the Cincinnatian, or upper Ordovician formation.

Although it is somewhat difficult to determine exactly how the formations are running at this depth it is believed the Trenton may now be struck at 4,250 to 4,300 feet, or about 300 feet higher than had been expected.

The next marker will be the Utica formation, a black shale which lies just above the Trenton limestone. About 125 to 135 feet of Utica shale is expected in the deep test which will now be carried on at least to the Trenton.

No water was struck in the Niagara or since which is considered favorable by the operators.

The well is the Muskegon Deep Well Syndicate's No. 5 Herman Heinz, NE

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TANKER SHIPMENTS FROM LOS ANGELES TO ATLANTIC AND GULF COAST PORTS

Commodity—	Total this week	Daily average	Total last week	Daily average	This year to date	Same time last year
Crude oil	.....	.....	.....	.....	68,690	997,250
Fuel oil	.....	.....	.....	.....	71,950	468,825
Diesel and gas oil	207,552	29,650	248,061	35,437	3,749,296	2,804,124
Gasoline	125,727	17,961	270,059	38,580	18,154,370	19,831,490
Kerosene	.....	.....	.....	.....	.....	49,750
Naphtha distillate	.....	.....	.....	.....	.....	31,750
Coastwise—						
Crude oil	306,114	43,731	267,108	38,158	14,797,528	24,467,216
Fuel oil	404,240	57,749	274,455	39,208	17,629,097	18,519,302
Diesel and gas oil	27,554	3,936	65,664	9,380	1,611,114	1,182,684
Gasoline	316,702	45,243	309,482	43,355	12,066,551	10,577,489
Kerosene	4,992	713	.....	.....	156,428	70,581
Exports—						
Crude oil	186,404	26,629	79,102	11,300	6,619,622	5,715,199
Fuel oil	430,494	61,499	322,365	46,052	16,601,640	17,732,552
Diesel and gas oil	141,668	20,238	8,766	1,252	4,122,072	2,601,631
Gasoline	413,798	59,114	179,602	25,657	14,844,085	11,254,007
Kerosene	46,214	6,602	37,248	5,321	3,228,711	3,030,176
Lubricants	.....	.....	13,695	1,956	59,179	.....

TANKER SHIPMENTS FROM SAN FRANCISCO TO ATLANTIC AND GULF COAST PORTS

Diesel and gas oil	.....	.....	.....	.....	279,083	.....
Gasoline	64,250	9,179	.....	.....	1,144,921	2,275,638
Kerosene	10,750	1,536	.....	.....	10,750	.....
Lubricants	.....	.....	.....	.....	27,796	138,706
Coastwise—						
Fuel oil	65,088	9,298	35,161	5,023	3,198,019	2,996,387
Diesel and gas oil	.....	.....	13,294	1,899	356,476	366,004
Gasoline	78,477	11,211	138,218	19,745	4,099,273	4,907,574
Kerosene	7,712	1,102	1,960	280	218,220	205,284
Exports—						
Crude oil	.....	.....	.....	.....	59,993	121,603
Fuel oil	.....	.....	56,114	8,016	1,049,140	841,631
Diesel and gas oil	12,111	1,730	69,946	9,992	539,646	393,132
Gasoline	74,947	10,578	140,007	20,001	3,859,900	5,263,308
Kerosene	7,712	1,102	15,114	2,159	593,097	624,180
Lubricants	.....	.....	.....	.....	33,579	29,795

IMPORTANT SOUTHERN CALIFORNIA WILDCATS

Company, well and location—	S.T.R.	Depth	Status—
Union, No. 1 Orchardale, Los Angeles Co.	10- 2-11	6,375	suspended
Olympic Realty Corp., No. 1 Barnes, Los Angeles Co.	14- 2-15	4,724	sd. sh. drilling
Taylor Oil Co., No. 1 Culver, Los Angeles Co.	12- 2-15	3,004	sd. sh. drilling
Dwyer & Becker, No. 1 Compton, Los Angeles Co.	17- 3-13	4,520	cleaning out
Francis, Den, No. 1 Compton, Los Angeles Co.	8- 3-13	572	suspended
Central Oil Co., No. 1 Compton, Los Angeles Co.	28- 3-13	5,094	suspended
Allison Synd., No. 1 Baldwin, Los Angeles Co.	8- 2-14	rig	rigging up
Cal. Ventura Oil Co., No. 1 Manhattan, Los Angeles Co.	30- 3-14	6,525	suspended
Cal. Ventura Oil Co., No. 1 Hermosa, Los Angeles Co.	31- 3-14	3,396	suspended
Cal. Ventura Oil Co., No. 2 Hermosa, Los Angeles Co.	31- 3-14	3,300	recemented
Cal. Ventura Oil Co., No. 3 Hermosa, Los Angeles Co.	31- 3-14	....	material
Westwood Pet., No. 1 Hermosa, Los Angeles Co.	6- 4-14	rig	suspended
Wolfe, George, No. 1 Hermosa, Los Angeles Co.	6- 4-14	rig	suspended
Wood, C. L., No. 1 Hawthorne, Los Angeles Co.	10- 3-14	402	sd. drilling
Alondra Co., Ltd., No. 1 Hawthorne, Los Angeles Co.	32- 3-14	mtl.	building rig
McMahon & McDonald, No. 1 Watts, Los Angeles Co.	12- 3-14	4,665	suspended
McKeon Drlg. Co., No. 1 Watts, Los Angeles Co.	1- 3-14	511	cemented
Rio Grande Oil Co., No. 1 Watson, Los Angeles Co.	17- 4-13	6,295	suspended
Sheeley, C. M., No. 1 Torrance, Los Angeles Co.	12- 4-14	....	location
Shell, No. 1 Van Nuys, Los Angeles Co.	19- 2-15	5,830	hd. sd. drilling
Mack Oil Co., No. 1 Chatsworth, Los Angeles Co.	6- 2-16	mtl.	building rig
San-Van Oil Co., No. 1 Van Nuys, Los Angeles Co.	14- 1-16	840	sd. drilling
Rio Hondo Pet., No. 1 Puente, Los Angeles Co.	14- 2-10	3,726	suspended
Rucker & Smith, No. 2 Puente, Los Angeles Co.	27- 2-10	rig	rigging up
Bardeen Pet., No. 2 Puente, Los Angeles Co.	2- 2-10	730	suspended
Vega Pet. Corp., No. 1 Puente, Los Angeles Co.	14- 2-10	rig	rigging up
Arden Oil Co., No. 1 Puente, Los Angeles Co.	15- 2-10	3,325	suspended
D. & B. Oil Co., No. 1 Puete, Los Angeles Co.	3- 2-10	4,620	cleaning out
El Dorado Oil Co., No. 1 Puente, Los Angeles Co.	30- 2- 9	1,092	cleaning out
Keck & Hall, No. 1 Puente, Los Angeles Co.	32- 2- 8	1,120	gas—shut in
Marcel Pet. Co., No. 1 Puente, Los Angeles Co.	31- 2- 8	3,100	suspended
Cudahy Oil Co., No. 1 Bell, Los Angeles Co.	30- 2-12	311	sd. drilling
The Texas Company, No. 1 Montebello, Los Angeles Co.	4- 2-12	....	location
Celito Oil Co., No. 1 Monterey Park, Los Angeles Co.	28- 1-12	5,278	suspended
Wolfe, George, No. 1 Alhambra, Los Angeles Co.	24- 1-13	1,269	sd. sh. drilling
Los Gatos Oil Co., No. 1 El Monte, Los Angeles Co.	16- 1-11	2,280	suspended
Ranch Oil Co., No. 1 Rosemead, Los Angeles Co.	30- 1-11	mtl.	building rig
Olympic Corp., No. 1 Calabasas, Los Angeles Co.	18- 1-17	5,695	fishing
Nesa Pet., No. 1 Newport, Orange Co.	21- 6-10	4,910	suspended
Hall, H. L., No. 1 Newport, Orange Co.	20- 6-10	790	suspended
Standard, No. 1 Newport, Orange Co.	26- 6-10	3,000	hd. sd. drilling
Fidelity Pet. Co., No. 1-A Murrietta, Riverside Co.	23- 7- 3	1,010	suspended
Hemet Pet. Co., No. 1 Ward, Riverside Co.	9- 5- 1	3,560	suspended
Imperial Valley Oil Co., No. 1 Brawley, Imperial Co.	36-11-10	3,240	suspended
McGregor Synd., No. 1 Del Mar, San Diego Co.	17-14- 3	1,265	suspended
Borderland Oil Co., No. 1 Encinitas, San Diego Co.	12-13- 4	2,519	suspended
Borderland Oil Co., No. 1 Point Loma, San Diego Co.	30-16- 3	4,175	suspended
Carr, O. K., No. 1 Capistrano, San Diego Co.	13- 8- 8	4,900	hd. sd. drilling
Grey, H. H., No. 1 Redlands, San Bernardino Co.	25- 1- 2	2,392	suspended
San-Col Oil Co., No. 1 Colton, San Bernardino Co.	18- 1- 4	240	suspended
Girard & Grimes, No. 1 Corona, San Bernardino Co.	8- 2- 8	1,549	suspended
Western Gulf, No. 1 Santa Ana, Orange Co.	12- 3- 8	1,000	br. sh. drilling
The Texas Company, No. 1 Olive, Orange Co.	7- 4- 9	rig	rigging up

IMPORTANT NORTHERN CALIFORNIA WILDCATS

Company, well and location—	S.T.R.	Depth	Status—
Standard, No. 1 Point Conception, Santa Barbara Co.	X- 5-34	6,735	hd. sd. drilling
Fields Gas Co., No. 1 Santa Maria, Santa Barbara Co.	8- 9-33	5,570	suspended
Western Gulf, No. 1 Santa Maria, Santa Barbara Co.	5- 9-33	4,778	cemented
Barnsdall, No. 1 Gato Ridge, Santa Barbara Co.	9- 8-32	5,750	sd. sh. drilling
Midwest Oil Co., No. 1 Los Alamos, Santa Barbara Co.	2- 7-32	1,800	cemented
General Pet., No. 1 Goleta, Santa Barbara Co.	21- 4-28	4,533	gas—shut in
General Pet., No. 2 Goleta, Santa Barbara Co.	21- 4-28	4,350	gas—shut in
General Pet., No. 3 Goleta, Santa Barbara Co.	21- 4-28	3,401	br. sh. drilling
General Pet., No. 134 Goleta, Santa Barbara Co.	21- 4-28	1,485	suspended
General Pet., No. 136 Goleta, Santa Barbara Co.	21- 4-28	1,016	suspended
General Pet., No. 137 Goleta, Santa Barbara Co.	21- 4-28	1,026	suspended
General Pet., No. 138 Goleta, Santa Barbara Co.	21- 4-28	4,931	suspended
General Pet., No. 139 Goleta, Santa Barbara Co.	21- 4-28	1,035	suspended
General Pet., No. 143 Goleta, Santa Barbara Co.	21- 4-28	1,040	suspended
Boles Oil Co., No. 140 Goleta, Santa Barbara Co.	22- 4-28	1,040	suspended
U. S. Pet., No. 141 Goleta, Santa Barbara Co.	20- 4-28	1,035	suspended
U. S. Pet., No. 142 Goleta, Santa Barbara Co.	20- 4-28	1,032	suspended
U. S. Pet., No. 143 Goleta, Santa Barbara Co.	20- 4-28	1,019	suspended
El Camino, No. 149 Goleta Tideland, Santa Barbara Co.	22- 4-28	1,035	suspended
Bolsa Chica, No. 191 Goleta, Santa Barbara Co.	24- 4-29	4,010	hd. sd. drilling
Caldwell Brown, No. 159 Goleta, Santa Barbara Co.	24- 4-29	1,040	suspended
Cochran, J. H., No. 1 Naples, Santa Barbara Co.	7- 4-29	4,630	cleaning out
Johnson, George, No. 1 Goleta, Santa Barbara Co.	X- 4-28	4,089	suspended
Prairie Oil Co., No. 1 Orella, Santa Barbara Co.	32- 5-30	....	location
Wildcat Oil Co., No. 1 Santa Maria, Santa Barbara Co.	20-10-35	5,800	suspended
Pacific Western, No. 1 Gibraltar, Santa Barbara Co.	14- 5-27	2,345	suspended
Prairie Oil & Gas Co., No. 1 Ventura, Ventura Co.	30- 3-22	7,700	br. sh. drilling
Associated, No. 1 Rincon Creek, Ventura Co.	19- 4-24	2,080	suspended
Pure Oil Co., No. 1 S. P. Canyon, Ventura Co.	15- 4-21	2,591	rebldg. rig
California Republic, No. 1 Sespe, Ventura Co.	23- 4-21	rig	suspended
Superior Oil Co., No. 1 Sespe, Ventura Co.	14- 4-21	3,300	sd. sh. drilling
Lockwood Valley Oil Co., well No. 1, Ventura Co.	32- 8-21	608	sd. sh. drilling
Nordon Oil Co., No. 1-A Buttonwillow, Kern Co.	7-29-24	6,310	sd. sh. drilling
Superior Oil Co., No. 1 Buttonwillow, Kern Co.	32-29-25	1,780	sd. sh. drilling
Federal Drlg. Co., No. 1 Buena Vista, Kern Co.	20-31-24	5,050	sd. sh. drilling
General Pet., No. 1 Belridge, Kern Co.	30-28-21	3,640	redrilling
The Texas Company, No. 1 Belridge, Kern Co.	22-27-20	2,945	sd. sh. drilling
Richfield, No. 1 Belridge, Kern Co.	20-27-20	5,804	oil sand
Standard, No. 1 Belridge, Kern Co.	31-27-20	2,610	sd. sh. drilling
Ohio Oil Co., No. 1 Belridge, Kern Co.	36-27-20	3,790	br. sh. drilling
Union, No. 17 Belridge, Kern Co.	36-27-20	3,010	sd. sh. drilling
Union, No. 1 South Belridge, Kern Co.	27-28-20	....	location
Rio Grande, No. 1 Belridge, Kern Co.	18-28-23	3,680	suspended
Reward Oil Co., No. 1 Belridge, Kern Co.	34-27-20	2,040	sd. sh. drilling
Shell, No. 4 Belridge, Kern Co.	14-28-20	1,210	20 bbls. daily
Wallace, K. C., No. 1 Belridge, Kern Co.	32-29-21	3,970	sd. sh. drilling
Rio Cal. Pet., No. 1 Shale, Kern Co.	2-27-18	2,355	suspended
Shell, No. 1 Weed Patch, Kern Co.	29-30-29	6,300	deepening
Shell, No. 2 Weed Patch, Kern Co.	29-30-29	4,360	sd. sh. drilling
Mohawk Oil Co., No. 1 Weed Patch, Kern Co.	32-30-29	4,804	sd. sh. drilling
Petroleum Securities, No. 1 Edison, Kern Co.	14-29-29	3,995	gr. sd. drilling
Symark Oil Co., No. 1 Edison, Kern Co.	24-29-29	2,130	suspended
Sayre, F. M., No. 1 Edison, Kern Co.	5-30-29	4,220	suspended
Standard, No. 1 Devils Den, Kern Co.	14-25-18	1,574	redrilling
Wellport Oil Co., No. 1 Devils Den, Kern Co.	9-24-17	3,940	suspended
Shell, No. 1 Semitropic, Kern Co.	17-27-23	3,475	hd. sd. drilling
Cities Service, No. 1 Wasco, Kern Co.	16-28-24	180	sd. drilling
Moran & DeCamp, No. 1 Mojave, Kern Co.	26-10-14	730	hd. sd. drilling
Meridian Oil Co., No. 1 Antelope, Kern Co.	11- 9-15	3,560	suspended
Bardeen, H. A., No. 1 San Emidio, Kern Co.	18-10-23	1,190	suspended
Bardeen, H. A., No. 2 San Emidio, Kern Co.	10-10-23	4,368	plugging back
Ritchie, J. J., No. 1 Tejon, Kern Co.	33-11-19	4,920	testing
Associated, No. 1 Jacalitos, Fresno Co.	22-21-15	3,448	sd. sh. drilling
Carruthers Oil Co., No. 1 Fresno, Fresno Co.	4-17-20	rig	suspended
Miracle Oil Co., No. 1 Cuyama, San Luis Obispo Co.	17-10-25	314	sd. drilling
Panorama Oil Co., well No. 1, San Luis Obispo Co.	7-31-21	4,019	suspended
Latin Amer. Pet., No. 1 Shandon, San Luis Obispo Co.	21-27-15	4,525	suspended
Paso Robles Synd., No. 1 Creston, San Luis Obispo Co.	21-27-11	3,941	suspended
Continental, No. 1 San Miguel, San Luis Obispo Co.	26-25-11	2,193	sd. sh. drilling
Schilling, C., No. 1 Atascadero, San Luis Obispo Co.	24-28-12	880	cemented
Pismo Dome Oil Co., No. 1 Edna, San Luis Obispo Co.	5-31-13	3,010	testing
Shockley, C., No. 1 Pismo, San Luis Obispo Co.	13-32-13	1,770	hd. sd. drilling
Standard, No. 1 King City, Monterey Co.	23-22- 7	5,950	hd. sd. drilling
Pacific Inland, well No. 1, Monterey Co.	19-23-15	901	suspended
Brown, F. A., No. 1 Parkfield, Monterey Co.	15-23-14	816	cleaning out
O'Donnell, J. E., No. 1 Dudley Ridge, Kings Co.	7-23-20	1,635	gas well—idle
Murphy Oil Co., No. 1 Dudley Ridge, Kings Co.	20-23-20	2,005	sd. sh. drilling
Kettleman Lakeview, No. 1 Tulare Lake, Kings Co.	11-23-19	1,050	suspended
Purman, T. H., No. 1 Reef Ridge, Kings Co.	36-23-17	995	sd. drilling
Seymour, L. W., No. 1 Avenal, Kings Co.	10-23-16	889	fishing
Twin State Oil Co., No. 1 Point Arena, Mendocino Co.	14-12-17	5,300	sd. sh. drilling
Orinda Pet., well No. 1, Contra Costa Co.	32- 1- 3	7,293	hd. sd. drilling
White, Roy, No. 1 Pixley, Tulare Co.	8-23-26	4,495	suspended
Campbell Oil Co., No. 1 Porterville, Tulare Co.	22-22-27	857	suspended
Western Oil Co., No. 1 Porterville, Tulare Co.	35-22-27	1,022	suspended
Mills & Wilson, No. 1 Porterville, Tulare Co.	35-22-27	913	abandoned
Jennings Synd., No. 1 Porterville, Tulare Co.	8-23-28	510	suspended
Terra Bella Drlg. Co., No. 2 Porterville, Tulare Co.	34-22-27	920	abandoned
Jacques Oil Co., No. 1 Porterville, Tulare Co.	34-22-27	914	suspended
Kern Pet. Co., No. 1 Porterville, Tulare Co.	34-22-27	1,184	suspended
Miller & Sylvan, No. 1 Porterville, Tulare Co.	11-23-27	1,030	suspended
Larson Oil Co., No. 1 Porterville, Tulare Co.	11-23-27	1,200	suspended
Kettleman Trust, No. 1 Porterville, Tulare Co.	21-22-27	940	suspended
Lewis, Paul M., No. 1 Porterville, Tulare Co.	15-22-27	1,118	suspended
Turk & Campbell, No. 1 Porterville, Tulare Co.	34-22-27	1,352	suspended
Roetner Oil Co., No. 1 Porterville, Tulare Co.	34-22-27	1,480	suspended
Wells & Armstrong, No. 1 Porterville, Tulare Co.	10-22-27	210	suspended
Enterprise Oil Co., No. 1 Porterville, Tulare Co.	29-23-28	700	suspended
Inland Valley Oil Co., No. 1 Visalia, Tulare Co.	24-17-24	2,060	reaming
Colusa Oil Co., No. 1 Bush, Colusa Co.	31-15- 4	780	hd. sd. drilling
Getty Oil Co., No. 1 Nigger Heaven, Yolo Co.	23-12- 3	2,050	suspended
Oakdale Oil Co., No. 1 Oakdale, Stanislaus Co.	3- 2-10	3,630	resume work

Seen While Scouting With The Journal's Cameras

1—F. W. (Barney) Brainard, vice president, Crum-Brainard Co., Ltd. 2—Herb Grau and N. K. Smith, Byron Jackson Co., Los Angeles, Calif. 3—E. M. Horn, Bass & Dillard Contracting Co., Van, Tex. 4—J. C. Gordon, production engineer, Pure Oil Co., Fort Worth, Tex., and D. L. Gallogly, factory testing engineer, Cooper-Bessemer Corp. 5—George P. Hill and Frank Campbell, independent operators, Fort Worth, Tex. 6—J. H. McEvoy, president; and Kirby Smith, sales manager, J. H. McEvoy & Co., Houston, Tex. 7—G. Gordon Urquhart and C. L. Moon, American Fomon Equipment Co. 8—Fred Morgan, president; Charles Alexander, driller; and W. E. Carey, Morgan Petroleum Co.

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THE

Tubing Cuts Big Lake Oil-Gas Ratio

Runnels County Well Deepened Increases Output. Crane-Upton Proration Discussed. Good Producer in Wheat Field

By L. E. Bredberg
Fort Worth Bureau, The Oil and Gas Journal

FORT WORTH, Tex., Dec. 15.—R. D. Parker, chief supervisor of the Railroad Commission, made a trip to the Big Lake Field, Reagan County, during the week and reported that he found that the oil-gas ratio of the deep wells in the field had dropped. Big Lake Oil Co.'s No. 1-C University is not tubed but the gas-oil ratio has been reduced with the aid of 450 pounds back pressure; No. 2-C is tubed and has a back pressure of 400 pounds, the ratio being 1 bbl. of oil to 8,728 feet of gas; the ratio of No. 1-C is 4,087 feet of gas; No. 3-C is not tubed but is on 800 pounds back pressure, the ratio is 5,735 feet of gas; No. 4-C is tubed, the ratio being 4,510 feet of gas, back pressure is 480 pounds. Group No. 1 Corp. (Continental Oil Co.) killed No. 2-B University with mud and has tubed No. 3-B. Experts are afraid to try to tube No. 1-B University, the first deep producer in the field, for connections, as pipe is worn thin by sand and rocks thrown out by the high gas pressure and it is feared an effort to tube it might cost life and property as well as ruining the well.

Mr. Parker has asked David Donoghue, technical advisor of the central proration committee of Texas, to check the results of tubing the deep wells. The oil and gas ratio has been decreased to approximately the figure estimated proper for the deep wells. December 15 marks the close of the extension time granted by the Railroad Commission to the two companies owning the deep wells for tubing them. Further extension has been asked but no action will be taken on this until Mr. Donoghue turns in a report on his findings.

Runnels County Well

Vacuum Oil Co. and others recompleted their No. 3 McMillan in the Domingo Diaz Survey, Runnels County, this week for an initial production of 186 bbls. of oil and 55 bbls. of water at a total depth of 2,517 feet. The former total depth was 2,513 feet. It was making only 10 bbls. per day on pump before deepened. Top of the pay sand is 2,512-17 feet. This is the only well producing out of the three drilled by Vacuum Oil Co. and associates.

Pecos Deep Test

The Pure Oil Co.'s No. 1 Harrison, NW Section 203, Block 3, T.&P. Survey, southwestern Pecos County, is shut down at 5,002 feet waiting on heavier equipment which will be used in carrying the well at least 2,000 feet deeper. This is one of the most interesting tests ever drilled in Pecos County, and due to the depth it will penetrate will give a large store of information on this area and this part of the Permian Basin.

Crane-Upton Proration

The Advisory Committee of Crane-Upton Counties met at the Texas Hotel December 10 to discuss proration and possible changes in the allowance for producing areas in these counties and it appears that the allowable which is now 29,000 bbls. per day will have to be reduced on January 1 unless nominations are increased in the meantime. A possible reduction of 5,000 bbls. per day may have to be made, and operators are trying to keep the allowable above 23,100 bbls. per day. The Tidal Oil Co. and Humble Pipe Line Co. have reduced nominations and this reduces the outlet to a smaller figure than heretofore.

Production in West Texas dropped 4,573 bbls. during the week from a total daily production of 266,766 bbls. of the past week to 262,193 bbls. this week with 1,124 bbls. daily going to storage during the past period while distribution was only 298,757 bbls. and total daily average production (including Lea County, New Mexico) was 299,881 bbls., runs to West Texas refineries dropping off over 8,500 bbls. from the previous period and trunk line runs dropping off about 25,000 bbls. per day, while tank car shipments picked up about 1,300 bbls.

Wheat Field Well

Eppenauer and others' No. 1 Allen in Section 90, Block 1, W.&N.W. Survey, Loving County, is rated as the best producer yet completed in the Wheat Field. It was shot with 200 quarts on December 13, from 4,267-4,317 feet, cleaned itself in 14 minutes and started flowing by heads, flowing about 50 bbls. every 63 minutes. This well topped the Delaware at 4,285 feet and the sand at 4,316 feet, the pay having been encountered at 4,307 feet. Total depth of the hole is 4,319 feet.

The following table of comparative data on prorated fields gives an idea as to how the various fields in the Mid-Continent and Texas are prorated:

Field—	Potential	Allowance	Per cent allowable	No. potential wells	Allowable prod. per well
Hobbs, N. Mex.	1,010,356	30,000	2.98	130	230
Oklahoma City	3,446,000	130,000	3.8	670	195
Yates	5,511,770	89,000	1.62	426	210
Van	1,300,000	27,500	2.12	168	164
Winkler County	60,000	55,000	92.0	600	92
Howard-Glasscock	85,000	23,000	27.0	534	43
Sugarland and Raccoon Bend	200,000	21,200	10.6	180	118

The following is a proration schedule in Texas showing the date of expiration and variation in length of proration term:

Field or district—	Date order starts	Date order ends	Extent of period
Bee County	October 31, 1930	December 21, 1930	60 days
Crane-Upton	November 29, 1930	January 28, 1931	60 days
Darst Creek	October 29, 1930	January 27, 1931	90 days
Ector County	August 1, 1930	February 1, 1931	6 months
Howard-Glasscock	June 30, 1930	December 30, 1930	6 months
North Texas	November 25, 1930	January 24, 1931	60 days
Panhandle	November 25, 1930	March 1, 1931	96 days
Salt Flat	November 8, 1930	February 6, 1931	90 days
Van Field	August 15, 1930	February 15, 1931	6 months
Winkler County	November 5, 1930	April 5, 1931	6 months
Yates Field	December 5, 1930	January 25, 1931	51 days

COMPLETIONS IN WEST TEXAS

Crane County

Simms Oil Co. and Atlantic Oil Producing Co.'s No. 1-B University, top pay 2,952 feet, shot 260 quarts 2,891-3,005 feet, initial production 10 bbls., total depth 3,101 feet. Simms Oil Co. and Atlantic Oil Producing Co.'s No. 2-B University, top pay 2,958 feet, shot 350 quarts 3,008-3,106 feet, initial production 45 bbls., total depth 3,106 feet, first completion December 1, 1928, at 3,008 feet, initial production 200 bbls.

Howard County

Laurel Oil & Gas Co. and others' No. 1 Flowers, dry and abandoned, total depth 3,675 feet. Merriwether Oil Co.'s No. 1 Eva Smith, dry and abandoned, total depth 3,270 feet, show of oil 3,060-70 and 3,082-3,109 feet.

Loving County

Phillips Petroleum Co.'s No. 2 Wheat, top pay 4,316-20 feet, total depth 4,322 feet, plugged back to 4,320 feet, initial production 292 bbls. after 170-quart shot from 4,282-4,320 feet.

Pecos County

Cardinal Oil Co.'s No. 11 Toborg, top pay 320 feet, initial production 15 bbls., total depth 398 feet. Oregon Oil Co.'s No. 2 Yates, dry and abandoned, total depth 2,440 feet. Plymouth Oil Co.'s No. 1 Perry (Section 13), deepened from 1,920 to 1,940 feet, plugged back to 1,930 feet, top pay 1,892 feet, initial production 10 bbls.

Reeves County

Slack and Fink's No. 1 Huling and others, temporarily abandoned 1,860 feet, top pay 1,820 feet, increase in gas 1,840 feet, shot 15 quarts from 1,821-30 feet, second shot 30 quarts 1,820-31 feet, about 5 bbls. per day if produced.

Runnels County

Vacuum Oil Co. and others' No. 3 McMillan, recompleted, total depth 2,517 feet, initial production 186 bbls. oil and 55 bbls. of water, pay sand 2,512-17 feet.

Ward County

Sid Richardson and others' No. 5 Edwards and O'Brien, top pay 2,573 feet, initial production 52 bbls. through 2½-inch tubing, total depth 2,769 feet.

WILDCAT OPERATIONS IN WEST TEXAS

Week Ended December 15

ANDREWS COUNTY

Company, well, farm name, section and block—	Remarks—
Deep Rock Oil Co. et al's No. 1 Kuykendall, 2,310 ft. from N and E of SW cor. Sec. 24, School Blk. A-46	Drlg. 905 ft.
Deep Rock Oil Co. et al's No. 1 King, 330 ft. from N and 2,310 ft. from E, Sec. 11, Blk. A-46	Top pay 4,335 ft.; flows every 4 days; temporarily abandoned; total depth 4,454 ft.

BREWSTER COUNTY

Brewster Oil Co.'s No. 1 fee, 2,640 ft. S and 2,598 ft. E of NW cor. Sec. 45, Blk. G-15, G.C.&S.F. Sur.	Shut down 1,935 ft.
E. L. Chapman's No. 1 Skinner, C SW SE, Sec. 100, Blk. 2, G.C.&S.F. Sur.	Shut down 1,302 ft.
Trans-Pecos Oil & Gas Co.'s No. 1 Jones, 920 ft. from N and 2,500 ft. from E of Sec. 18, Blk. G-15, G.C.& S.F. Sur.	Shut down 2,510 ft.
Van McDonald's No. 1 McIntyre, SE cor., Sec. 59, Blk. 352, 7 miles S of Alpine	Shut down 1,750 ft.

CONCHO COUNTY

Beesley et al's No. 1 S. Waring Est., 1,320 ft. from S and E of A. T. Robinson Sur., Abst. 2,120 ft.	Spudded and shut down.
Turner et al's No. 1 Borsig, 150 ft. from S of NE cor. G. Emmig Sur. 130, 6 miles W of Paint Rock	Shut down 1,520 ft.

CRANE COUNTY

Continental Oil Co.'s No. 1-C Cowden Bros & Co., 207 ft. from N and 2,470 ft. from W, Sec. 81, Blk. X, C.C.S.D.&R.G.N.G. Sur.	Location.
Cranfill Bros. and Gulf's No. 1 J. B. Tubb, 2,310 ft. from N and 330 ft. from E of Sec. 8, Blk. B-27, Public School Land	Drlg. by tools; making estimated 7,000,000 ft. gas and spraying 25 bbls. oil per day; total depth 4,488 ft.
Cranfill Bros.' No. 1 Muir, 330 ft. from N and 2,310 ft. from W, Sec. 23, Blk. B-27, Public School Land	Drlg. 3,812 ft.

CROCKETT COUNTY

Dieringer et al's No. 1 Banscorew estate, 50 ft. from N and 1,213 ft. from E of NW of Sec. 27, Blk. HH, G.C.&S.F. Sur.	Drlg. 1,160 ft.
Doleman & Moore's No. 1 Perner, 3,135 ft. from N and 1,485 ft. from E of Sec. 36, Blk. 2, I.&G.N. Sur.	Spudded and shut down.
Magnolia Pet. Co.'s No. 2 Hoover, 2,310 ft. from S and 335 ft. from E of Sec. 2, Blk. FF, B.&B. Sur.	Swabbing and bailing 6 bbls. oil per day; total depth 2,056 ft.; shut down for storage.
Taylor-Link Oil Co.'s No. 1 Mary Bullock et al, 330 ft. from N and E of Sec. 41, T.C. Sur.	Run 8¼-in. casing 1,350 ft.

CULBERSON COUNTY

Cranfill Bros. and Sholts' No. 1 Seay, 2,310 ft. from S and W, Sec. 45, Blk. 60, Public School Land	Spudded and shut down to finish rigging up.
Grisham & Hunter's No. 2 Garren, 2,475 ft. from S and 1,566 ft. from E, Sec. 20, Blk. 89, Public School Land	Shut down 1,520 ft.; show oil 1,400-15 ft.

(Continued on Page 111)

WEST TEXAS PRODUCTION
Week Ending December 13

County—	No. wells	Bbls.
Andrews	3	100
Crane	371	26,915
Crockett	49	1,785
Ector	75	7,595
Fisher	8	1,557
Garza		33
Howard-Glasscock	533	24,495
Irion	7	79
Jones	73	1,405
Loving	33	2,717
Mitchell	148	2,041
Pecos	524	103,280
Reagan	253	24,951
Runnels	4	176
Scurry	5	7
Taylor	3	135
Upton	253	6,811
Ward	47	3,330
Winkler	593	54,781
Total production this week		262,193
Total production last week		266,766
Decrease		4,573

Runs Through Trunk Lines

Company, size and location—	Bbls.
Atlantic 10-inch, Houston	21,229
Gulf 10-inch, Ranger	36,828
Humble 3 and 8-inch, San Angelo	21,790
Humble 10 and 12-inch, Ingleside	49,613
Illinois 3 and 8-inch, Del Rio	31,655
Magnolia 8-inch, De Leon	20,842
Pasotex 8-inch, El Paso	9,738
Shell 10-inch, Healdton	24,357
Shell 10-inch, Houston	33,324
Texas 12-inch, Houston	10,210
Total	259,586

Runs to West Texas Refineries

Amarillo Ref. Co., Pyote	None
Big Spring Ref. Co., Big Spring	605
Burford Ref. Co., Pecos	2,939
Blue Bonnet Ref. Co., Wickett	None
Cosden Ref. Co., Big Spring	6,617
Col-Tex Ref. Co., Colorado	7,000
Great Western Ref. Co., Big Spring	2,780
Humble Oil & Ref. Co., McCamey	None
Richardson Ref. Co., Big Spring	None
Tonkawa Ref. Co., Pyote	None
Wickett Ref. Co., Wickett	150
Total	20,091

Tank Car Shipments

Texas Pacific Coal & Oil Co., from Hurdle	None
Fox & Thorsen, from Mertzon	None
Thomas-Brann, from Grant City	None
Reagan County Pur. Co., from Texon	None
Orient, from Hurdle	65
Southern Crude Oil Pur Co., from Wickett	19,015
Total	19,080
Total daily average distribution	298,757
Total daily average production (including Lea County, N. M.)	299,881
Daily average to storage	1,124

New Plans for Proration in Panhandle

Reached After Meeting Which Approached Deadlock for a Time. Wichita Falls Operators Also Meet. Good Well in Gray County

By L. E. Bredberg
Fort Worth Bureau, The Oil and Gas Journal

FORT WORTH, Tex., Dec. 15.—The major event of the week for the Panhandle district was a proration meeting held in Fort Worth on December 11 attended by many producers and pipe line company representatives who met to work out a possible remedy for the dire situation in which the district had been placed by the withdrawal of the Prairie Oil & Gas Co. and Bartex Pipe Line Co. (Phillips Petroleum Co.) as purchasers in the district, the former company having been connected to 84 leases taking approximately 5,227 bbls. per day and the latter to 23 leases taking approximately 1,260 bbls. per day.

The district has been suffering for pipe line connections for the past few months, but these last two withdrawals almost broke "the camel's back" and something drastic had to be done at once in order to bring the district out of a chaotic condition. The Humble Oil & Refining Co., The Texas Company and Toronto Pipe Line Co. stretched themselves to the limit to cover the 4,800 bbls. left unconnected after possible exchanges had been discussed and other purchasing companies had agreed to take a little more oil than they had previously been running.

The district has been allowed 64,616 bbls. per day but this allowance has been cut to 40,000 bbls. per day providing all unconnected leases can be connected, connections exchanged and gathering systems laid to the unconnected wells so that all leases and wells will receive an equitable share of production in the daily allowance.

Overproduction 8,850 Bbls.

It was brought out in the meeting that there were 3,460 bbls. of overproduction per day due to injunctions allowing producers to produce their leases to the limit, another large amount was overproduced by violations, making a total of 8,850 bbls. per day of overproduction.

A representative of the Prairie Oil & Gas Co. asked that his company be considered as a producer now instead of a purchaser and that its production be considered when pipe line connections were exchanged and made to unconnected leases. He said his company would try to handle its own oil at the present time to help out a bad situation, but eventually would have to be given pipe line outlet by some purchasing company.

The Bartex Pipe Line Co. tendered its gathering system and facilities to other purchasing companies to help out the situation, and it is believed that the Prairie Oil & Gas Co. will also lend its lines to gathering oil and making exchanges.

The purchasing companies said they could not be asked to spend several thousand dollars in the fields to lay extensive gathering lines and lines to outside leases, but that the producers should lay lines to connect their wells with the purchasing companies' lines, and exchanges should be made to keep down the expense of the purchasing companies who were so agreeable as to take more oil, and consequently grant relief to the district.

C. C. Herndon, vice president of the Skelly Oil Co., and H. M. Stalcup, of the same company, both of Tulsa, stated the position of their company as a producer saying it had tried to make exchanges in every conceivable way, as did other companies in the district, but that the oil could not be exchanged or sold and that a cut in production was the only feasible plan wherein the district could be saved by proration. They both endorsed the decrease to 40,000 bbls. per day, asking that the drastic cut be made at once, the new order to take effect December 15 as stated in the resolution asking for the decrease to 40,000 bbls. per day, with no marginal exemptions.

For a time the meeting was deadlocked and R. D. Parker, chief supervisor of the Railroad Commission of Texas, who attended the meeting, said failure there would mean the downfall of proration in the rest of the State and the withdrawal of the commission from all future proration in the State.

After the Humble Oil & Refining Co., the Texas Pipe Line Co. and Toronto Pipe Line Co. agreed to take the surplus unconnected oil it was left up to the umpire, Mr. Corcoran, the producers and purchasers, to work out exchanges whereby little expense will be involved to tieing into the wells which do not have connections, and getting all wells connected so all will share alike in production. There are 750 producing properties in the Panhandle district with 200 flush producing properties, and many exchanges will have to be made to connect all wells.

Proration Schedule

A. C. Smith of The Texas Company presided at the meeting. In accordance with the special order of the Railroad Commission of Texas, dated November 25, 1930, the operators and producers in the district are allowed 39,913 bbls., December 15, 1930, to January 1, 1931. Following is the recapitulation and summary of the Panhandle proration schedule for the current period:

County—	Wells	Potential	Allowable
Carson	232	11,287	3,389
Gray	732	89,485	28,752
Hutchinson	925	22,193	7,145
Moore	20	845	390
Potter	1	7	7
Wheeler	42	702	235
Total	1,952	124,519	39,918

Total potential production is 124,519 bbls.
Total outlet is 40,000 bbls.

Another resolution was adopted at the meeting, opposing any other field in Texas being allowed to raise its allowable outlet, thereby causing discrimination between pools.

Wichita Falls Meeting

Last week the Wichita Falls operators held a proration meeting at Fort Worth, and since that time purchasers and operators have been working to perfect proration in that district so that all wells will be connected and will share alike in the allowable production. The proration scheme now in effect in the North Texas district for Archer, Baylor, Ford, Wilbarger, Clay, Cooke, Montague and Wichita Counties allows 58 per cent of production of leases having a well average of more than 6 bbls., and 4 bbls. per well from leases having a well average of more than 4 bbls. and not over 6 bbls. One hundred per cent is allowed on leases that have a well average of only 4 bbls. or less. This plan does not include north Young County, which is prorated separately. Proration in this county has been based on 6 bbls. for marginal wells plus 10 per cent of the balance.

The Wichita Falls operators hope the Panhandle district can iron out its difficulties and that the allowable will be cut to 40,000 bbls. with all wells given connections for much bootleg oil has been shipped into the Wichita Falls district from the Panhandle district to the distress of the Wichita Falls district, and if all wells in the Panhandle are granted connections it is felt this will do away with bootleg crude being sold in the Wichita district.

Gray County Well

The Magnolia Petroleum Co. completed the largest well completed in the Panhandle district for several weeks. This well is No. 1 Latham in Section 153, Block 3, I.&G.N. Survey, Gray County. It topped the pay at 3,141 feet and was completed for an initial production of 1,815 bbls. at a total depth of 3,153 feet. Most of the other wells completed in the district were gassers or small oil wells and the daily production of the week showed a drop of 3,880 bbls. from the past week.

Young County had 16 wells completed in it but none was of exceptional interest.

The Wichita Falls district also showed a slump in production, falling off 1,703 bbls. from the previous week.

The Ranger district was unusually quiet with Eastland Oil Co.'s No. 1 Cannon in the E. M. Justis Survey extending the Burkett pool about one-fourth mile northwest, estimated good all the way from 30 to 150 bbls. at 1,613 feet.

The Overall Pool, Coleman County, produced an average of 328 bbls. per day for the week.

WILDCAT OPERATIONS IN TEXAS PANHANDLE

Week Ending December 15

CARSON COUNTY

Empire G. & F. Co.'s No. 1 Jordan et al, C SE, Sec. 94, Blk. 4, I.&G.N. Sur. — Fishing 1,900 ft.
Krebs & Barnard's No. 1 Barnard, 660 ft. S and W, NW, Sec. 24, Blk. 4, I.&G.N. Sur. — Drlg. 2,140 ft.
Hagy & Harrington's No. 1 Kalka, C NE NE, Sec. 43, Blk. 4, I.&G.N. Sur. — Location.
Lone Star Gas Co.'s No. 1 McConnell, C SE SW, Sec. 65, Blk. 4, I.&G.N. Sur. — U.R. 8¼-in. csg. 1,815 ft.
Magnolia Pet. Co.'s No. 1 Burnett, 330 ft. N and W, W½ NW, Sec. 101, Blk. 4, I.&G.N. Sur. — Drlg. 2,610 ft.
North American O. & G. Co.'s No. 1 Polling, 1,320 ft. N, 1,500 ft. E, Sec. 24, Blk. Y-2, T.T.R.R. Sur. — Drlg. 650 ft.
Interstate Prod. Co.'s No. 3 McConnell, N½ NW, Sec. 46, Blk. 4, I.&G.N. Sur. — Drlg. 2,095 ft.
Plains Holding Co.'s No. 1 M. P. Co. fee, C N½ NW SW, Sec. 40, Blk. 4, I.&G.N. Sur. — Location.
Ryan Cons. Oil Co.'s No. 1 Jordan-Brown, C N½ E½ NE, Sec. 83, Blk. 4, I.&G.N. Sur. — Drlg. 490 ft.

CHILDRESS COUNTY

C. L. Sloane et al's No. 1 B. P. Smith, Sec. 49, F. P. Knott lands — T.D. 5,000 ft.

COLLINGSWORTH COUNTY

Dixon et al's No. 1 Bell, 330 ft. N, 1,320 ft. W, Sec. 102, Blk. 21, H.&G.N. Sur. — S.D. 510 ft.

GRAY COUNTY

Adams, Prince et al's No. 1 Morse, 330 ft. NE SE, Sec. 6, Blk. 26, H.&G.N. Sur. — Drlg. 1,480 ft.
British-American Oil Co. and Shell Pet. Corp.'s No. 1 Smith, 330 ft. S and E, NW, Sec. 138, Blk. 3, I.&G.N. Sur. — Location.
Beck's No. 1 Sullivan, 330 ft. N and E, W¼ NW, Sec. 135, Blk. 3, I.&G.N. Sur. — Estimated 30,000,000 ft. gas 2,520-2,650 ft; C.O. 2,720 ft.
Boyles et al's No. 1 Colebank-Morse, 330 ft. NE, Sec. 65, Blk. 25, H.&G.N. Sur. — Spudded and S.D.
Brown et al's No. 1 Duncan, 330 ft. S and E, NW, Sec. 93, Blk. 3, I.&G.N. Sur. — S.D. 740 ft.
Cree & Hoover's No. 1 Cole, 330 ft. N and W, SW Sec. 105, Blk. 3, I.&G.N. Sur. — Drlg. 1,950 ft.
Empire G. & F. Co.'s No. 1 McCullough, 1,320 ft. S, 336 ft. W, Sec. 153, Blk. 3, I.&G.N. Sur. — S.D. 2,420 ft.
Danciger O. & R. Co.'s No. 1 Sullivan, 231 ft. N, 224 ft. W, of E 160 ac. of S 264 ac., N½, Sec. 136, Blk. 3, H.&G.N. Sur. — S.D. 2,552 ft.
Danciger O. & R. Co.'s No. 1 Barrett, 231 ft. S, 330 ft. W, E½ of N 56 ac., Sec. 136, Blk. 3, I.&G.N. Sur. — Drlg. 524 ft.
Danciger O. & R. Co.'s No. 2 Sullivan, 231 ft. N, 884 ft. W, of E 160 ac. of S 264 ac., N½, Sec. 136, Blk. 3, H.&G.N. Sur. — Drlg. 2,710 ft.
Empire G. & F. Co.'s No. 1 Sullivan, 330 ft. NW of E 64 ac. of W 104 ac. of S 264 ac., N½, Sec. 136, Blk. 3, I.&G.N. Sur. — 1,000,000 ft. gas 2,775 ft; S.O. 3,135 ft. and 3,210-12 ft; drlg. 3,560 ft.
Hurst et al's No. 1 Ayres, 330 ft. S and E, Sec. 76, Blk. 3, I.&G.N. Sur. — Rotary rig.
Jean Pet. Co.'s No. 1 Furneaux Bros., 330 ft. N and W, cor. SE, Sec. 200, Blk. B-2, H.&G.N. Sur. — Drlg. by tools 3,770 ft.
Magnolia Pet. Co.'s No. 2 Heitholt, 150 ft. S, 1,156 ft. W, SE, Sec. 152, Blk. 3, I.&G.N. Sur. — Drlg. 1,598 ft.
Magnolia Pet. Co.'s No. 2 Latham, 175 ft. N, 150 ft. E, Sec. 153, Blk. 3, I.&G.N. Sur. — Drlg. 2,925 ft; 5,000,000 ft. gas 2,770-2,885 ft.
Magnolia Pet. Co.'s No. 1 Morse, 330 ft. N and W, S½ NE, Sec. 5, Blk. 26, H.&G.N. Sur. — Spudding.

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NORTH TEXAS PRODUCTION

Week Ending December 13

Panhandle District—	Bbls.
Carson County	5,110
Hutchinson County	13,220
Gray County	53,825
Moore County	265
Potter County	60
Wheeler County	375
Total production this week	72,855
Total production last week	76,735
Decrease	3,880
Wichita Falls District—	
Archer County	13,432
Baylor County	1,001
Clay County	696
Cooke County	2,970
Foard County	113
Jack County	1,636
Haskell County	32
Montague County	5,973
Throckmorton County	691
Wilbarger County	15,989
Wichita County	21,641
Young County	12,125
Total production this week	76,289
Total production last week	77,992
Decrease	1,703
Ranger District—	
Brown County	4,889
Callahan County	2,890
Coleman County	2,641
Comanche County	1,048
Palo Pinto County	409
Eastland County	3,776
Shackelford County	5,061
Stephens County	5,065
Total production this week	25,779
Total production last week	26,918
Decrease	1,139

COMPLETIONS IN NORTH CENTRAL TEXAS

Archer County

Paul Otchley's No. 1 Lemmon, dry and abandoned, total depth 1,315 feet.

Cooke County

Simms Oil Co.'s No. 1 Jacobs, dry and abandoned, total depth 1,635 feet. Walker

(Continued on Page 110)

Joiner Pool Thought Finally Proved

New Producer Flows 740 Bbls. of 40.5 Gravity Oil and Heralds Another Woodbine Pool. May Be New Threat to Industry

By L. E. Bredberg
Fort Worth Bureau, The Oil and Gas Journal

FORT WORTH, Tex., Dec. 15.—The Joiner Pool, central Rusk County, came through with a substantial well this week that finally proved this pool opened for major production, and heralding another Woodbine pool for East Central Texas. The well that has had many operators and company men interested for the past two weeks and which proved this pool running to the west and a major pool, is Frank Foster and Deep Rock Oil Co.'s No. 1 Ashby, 200 feet from the north and 250 feet from the east of the Ashby 75-acre tract in the Juan Ximines Survey, almost 1 mile west of C. M. Joiner's No. 3 Mrs. Daisy Bradford, the discovery well of the pool.

The Ashby well has been shut down for two weeks with casing cemented at 3,580 feet, total depth of hole standing at 3,618 feet, but the plug was drilled out on December 12 and coring was commenced. It started flowing on December 13 and on December 15 the last gauge reported was from 1 a.m. to 7 a.m. when the well flowed 740 bbls. through a 1-inch choke and 2½-inch tubing. Gravity of the oil tested 40.5 A.P.I. It also gauged 2,500,000 feet of gas. Top of the sand was encountered at 3,597 feet in this new well.

The hole was washed for one hour on December 13 and there was no show of oil and gas, but the control head was taken off and an hour later the flow started, making 38 bbls. the first 20 minutes and 129 bbls. the first hour, averaging about 123 bbls. per hour during the time it was allowed to flow. It was then shut in on account of lack of storage, there being only two 1,000-bbl. tanks up on the lease. Three more 1,000-bbl. tanks were completed today and three more will be erected. No pipe line connection has been definitely promised the pool, although 2½ miles of 4-inch connects the pool with a loading rack on the M.-K.-T. railroad to the northeast, and an extension of this line into Louisiana has been reported, the name of the company formed to build this line being given as the Panola Pipe Line Co., which is said to be formed by L. H. Hunt of Shreveport. Nothing definite has been obtained as to the authenticity of this line, but reports may possibly be verified later. The L. H. Hunt, Incorporation, has one test in the pool ready to drill in. It has been standing shut down at 3,650 feet for three weeks.

Another Completion

Another well was completed in the Joiner Pool this week, but was not of the same caliber as the Ashby well, nor an interesting extension, consequently it has not attracted the attention the Ashby well has. This well is Stroube & Stroube's No. 1 H. Frederick and is 156 feet from the north and 500 feet from the west of the southeast corner of the Frederick 195-acre tract in the Ximines Survey about 700 feet north of the Joiner discovery well, as shown on the Joiner Pool map published on Page 74 in The Oil and Gas Journal, December 4. Total depth of this well is also 3,618 feet, and the sand was found at 3,506-18 feet where the first drill stem test showed 3 fourbles of oil and 1 fourble of mud. The rig was burned when the well made a head of gas and oil, and the well has been shut down rebuilding rig until this week when it was put on pump and pumped 225 bbls. the first 24 hours through 2½-inch tubing, this gauge including the head. The well probably will settle down to Joiner's No. 3 Bradford's daily average which is running better than 150 bbls. per day.

Rosenfield's No. 1 Pinkston, in the Pinkston 77-acre tract in the Maria V. Pena Survey, a considerable distance south of the Joiner Pool, has been taken over by other parties and is being carried down, now drilling at 2,920 feet in chalk, topping the Pecan Gap chalk at 2,503 feet. Elevation is 363 feet.

Lack of Pipe Line

Many might hesitate to name the Joiner Pool as a major threat to production, but since this week has brought in two wells, one especially good for the pool, it seems that the pool has most assuredly proven itself as of major importance and cognizance will have to be taken of it although lack of major companies owning acreage and having properties or interest in the pool may help to keep down production unless an independent concern or major pipe line company lays a line into the pool regardless of it not owning producing properties or being a sister company of some company owning such properties in the pool. The Panola Pipe Line Co. may lay a line into the pool to connect with the Joiner producer and other producers that might be completed on L. H. Hunt, Inc.'s properties which were purchased from C. M. Joiner two weeks ago, and this line connect with adjoining producers belonging to other operators, giving the field at least one outlet until perhaps some major company may purchase a half interest or whole interest in some producing property in the field, and a sister pipe line company lay a line to take its production.

Lack of major companies owning acreage in the Joiner Pool may be the cause of it being rapidly drilled by the independent operators but this same lack of interest of major companies may also help to prevent an orgy of drilling due to a pipe line outlet not being given the pool.

Bateman Oil Co.'s No. 1 Lois Della Crim, in the E. G. Serien Survey, approximately 10 miles northwest of the Joiner Pool in Rusk County, is exceptionally interesting at this writing as it is coring at a crucial depth, 3,638 feet. It cored sandy shale from 3,618-25 feet and missed a core from 3,625-37 feet and is now coring ahead. It topped the Austin chalk at 3,475 feet and is running about 23 feet lower than Frank Foster and Deep Rock Oil Co.'s No. 1 Ashby. Elevation of the test is 403 feet, and that of the Ashby well is 391 feet. Elevation of the Joiner discovery is 402 feet.

Six Locations Made

Six locations were made in the Joiner Pool this week to prove that the pool has assumed a more interesting status than heretofore, and is liable to see many rigs spring up on the small tracts which dominate the field. Frank Foster made a location on the Mayfield farm northeast of the Ashby well; H. L. Hunt is moving in rig on the Claude Ashby 109.7-acre tract, 600 feet west of the Joiner discovery well; Knox and others have made a location on the Melton 160-acre tract in the Elizabeth Melton Survey, 2 miles north and east of the Joiner discovery; Lide and others are moving in material on the Calvin Young farm, 1½ miles southwest of the Ashby producer, and Jack Younger built a derrick for his No. 1 Mrs. Daisy Bradford, 3,400 feet south of the Joiner discovery. These tests are so widely scattered in various directions from the Joiner producer that they will all be interesting tests, either extending production or defining the limits of production. Footage of these wells will be given on the East Central Texas drilling report.

Van Pool Proration

December 10 a hearing was held by the Railroad Commission at Austin for the purpose of considering any and all matters pertaining to proration in the Van Pool, and especially to hear a discussion on an increase formerly requested by the Pure Oil Co. to allow the pool to produce 35,000 bbls. daily from December 15 to January 1, 1931; 40,000 bbls. from January 1 to January 15; 45,000 bbls. from January 15 to February 15, and 50,000 bbls. per day after February 15 until otherwise ordered, but at the hearing the company asked that the pool's present allowable of 27,500 bbls. per day remain unchanged for another 30 days, consequently it will remain as heretofore although at the end of the 30 days another request for an increase may be asked due to the Humble Pipe Line Co. completing its line from the Van Field to Louisiana and ready to run part of the allowable of the field.

This 10-inch line to Morgan pump station 10 miles east of the Texas state line over in Louisiana was completed on December 13 and tested on December 14 and ready for use. An exchange in oil will probably be made between the Pure Oil Co. and Humble Oil & Refining Co. and the Humble line out of the pool begin to carry part of the allowable at once, although the Pure Oil Co.'s 10-inch to Smith's Bluff has not been carrying to capacity out of the pool.

Van Pool Completions

Seven wells were completed in the Van Field, Van Zandt County, this week, one of them, the Pure Oil Co.'s No. 1 Sam Allen on a 30-acre farm in the J. Prado Survey extending production another 500 feet south. Only two locations were given out, but several more were being made and will be announced during the week.

EAST CENTRAL TEXAS WILDCATS

Week Ending December 15

DELTA COUNTY

D. S. Hoods' No. 1 J. J. Balser, 185 ft. from S and 580 ft. W of Balser 40-ac. tract in SE cor. T. B. Laddin Sur. ..... Shut down 1,276 ft.

Worthington and Stedman's No. 1 W. H. Dejehett, 150 ft. from S and 776 ft. from W of 52-ac. tract, E. Chick Sur. ..... Drlg. 952 ft.

FANNIN COUNTY

E. A. Parsons et al's No. 1 Morgan in the English Sur., 3 miles NE of Savoy ..... Shut down 3,435 ft.

E. M. Rogers' No. 1 McSwain, 300 ft. S and E of Michael Daly Sur., in Juan Telgado Sur., 1½ miles NE of Lomasco ..... Shut down 1,500 ft.

GREGG COUNTY

J. C. Ferrell's No. 1 J. K. Lathrop, 661 ft. from N and 1,194 ft. from W of 96-ac. tract, William Robinson Sur. ..... Drlg. 187 ft.

M. S. Hammond's No. 1 J. M. Hamby, 278 ft. from E line, 1,667 ft. S of Hamby 3,800-ac. tract, Martin Lant Sur. ..... Shut down 2,588 ft.

HENDERSON COUNTY

H. E. Ashburn et al's No. 1 T. E. Barry, center of Barry 59 ac. tract in A. York Sur. ..... Shut down 3,620 ft.

E. L. Chapman's No. 3 Cade, 1,560 ft. from N and 750 ft. W. J. B. Dorsey Sur. ..... T. D. 1,150 ft.; cored.

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Humble Oil & Refining Co.'s No. 1 McGaffrey in the Blackfoot area, Anderson County, is coring at 4,655 feet in hard gray sand.

Texas State Oil Co. and others' No. 1 Skinner in the S. J. Henshaw in Henderson County is ready to be abandoned at 4,665 feet, marking off another area to production. A drill stem test was made December 13 for one hour with no show of gas oil or water. The Woodbine sand was topped at 4,396 feet and red beds at 4,412 feet.

Production

Daily average production of the pools in the East Central Texas area for the week ending December 13 follows:

Boggy Creek	2,900
Cedar Creek	55
Currie	285
Hill County	30
Mexia	3,856
Minerva	545
Nigger Creek	165
Powell	5,228
Richland	155
Rusk County	160
Thrall	40
Van	27,816
Wortham	610
Total East Central Texas	41,845
Week ending December 6	41,657
Increase	188

COMPLETIONS IN EAST CENTRAL TEXAS

Cass County

The Texas Corporation's No. 1 Citizen's State Bank, dry and abandoned, total depth 3,705 feet.

Shelby County

G. R. Ridgeway's No. 1 G. D. Parker, dry and abandoned, total depth 3,017 feet.

Van Zandt County

Powell and others' No. 1 Kellam, Pecan Gap 2,800-2,924 feet, top Woodbine sand 4,690 feet, dry and abandoned, total depth 4,806 feet. Pure Oil Co.'s No. 1 Sam Allen, initial production 89 bbls., total depth 2,942 feet, produced through eleven-sixteenths-inch choke. Same company's No. 2 J. T. Taylor, initial production 72 bbls., total depth 2,950 feet, produced through eleven-sixteenths-inch choke. Same company's No. 1 H. C. Gilbert, initial production 93 bbls., through eleven-sixteenths-inch choke, total depth 2,953 feet. Same company's No. 4 N. J. Clark, initial production 96 bbls., through eleven-sixteenths-inch choke, total depth 2,931 feet. Same company's No. 2 W. H. Cooke, initial production 139 bbls., through eleven-sixteenths-inch choke, total depth 2,972 feet. Same company's No. 2 R. A. Howell, initial production 83 bbls., through eleven-sixteenths-inch choke, total depth 2,961 feet. Shell Petroleum Corp.'s No. 8 E. L. Fowler, initial production 108 bbls., through eleven-sixteenths-inch choke, total depth 2,944 feet.

RECOVER EXCESS CHARGE

The Transcontinental Oil Co., Pure Oil Co. and the National Refining Co. have been granted a refund of approximately $100,000 as excess money paid as freight on fuller's earth shipped to their refineries during the past four years. The complaint was originally entered by the Transcontinental Oil Co. two years ago asking that a refund be granted covering the two-year period allowable prior to issuing the complaint. After two years of consideration, the Interstate Commerce Commission issued a favorable decision. The Transcontinental Oil Co. was later joined by the Pure and the National and many other Mid-Continent refiners have since entered similar complaints.

Pipe Line Construction News

STEEL MILLS EXPECTING PIPE PROJECT ORDERS

By B. E. V. Luty

PITTSBURGH, Pa., Dec. 15.—There are some very promising line pipe projects involving large tonnages of pipe. Mills are under the impression that some of the orders involved will be placed shortly, hardly this month, but quite possibly in January. Production might not be called for so soon as laying of the pipe would be difficult and expensive in most sections. Orders would be placed to insure delivery when wanted and doubtless the buyers would feel they could get closer quotations then than later on, when producers might be quite busy.

Electric weld of the largest diameter that would be wanted is now being made by Smith at Wilwaukee, Youngstown Sheet & Tube at Youngstown and National Tube at McKeesport, while fairly large diameters are supplied by Republic at Youngstown. Seamless up to 24-inch by the new "rotary rolling" process is being made by National at Gary and Lorain and later it will be made at McKeesport. There are many lap weld furnaces using the old fire welding process to help out in case other supplies are not sufficient. Some have been abandoned in the last few years and others will be during the next two or three years.

There is now only a very moderate volume of line pipe production, nearly all the large projects involving laying in the North being completed, but there will be some laying in the South probably all winter.

Demand for standard or merchant pipe is light, as it has been lately. This is always the dull time of year for standard pipe but demand does not seem to be slipping any more this month.

Prices on standard pipe have been quite steady right along and there is no discussion about them, there being no though that they will either advance or decline. In the general steel market pipe takes its place with standard rails in that there is no talk about prices. In all other steel products there is more or less effort to obtain better prices. Pipe is different from rails in this respect, however, that it has declined since the rise of more than seven years ago, whereas rails are at their old price.

Following an effort to "stabilize" bars, shapes and plates at 1.60 cents, begun in the fore part of November, and thus far apparently altogether successful, mills are now quoting 1.65 cents as their first quarter price, the 1.60-cent price being open for deliveries in the remainder of this month. Presumably large buyers would be accorded first-quarter contracts at 1.60 cents if they act this month, but there is no statement to that effect. The large buyers always expect a concession from the open market and generally they get it.

Sheets, strips and wire products appear to be steady at prices recently quoted as the regular market. In sheets there had been some shading and this seems to have diminished. While producers of all three classes feel they should have better prices, they are practically committed to existing prices as to first-quarter contracts and any attempt to advance prices would be made later.

With steel demand light all around, consumers not being at all busy and rigidly curtailing stocks for January 1 inventory, production has decreased somewhat more, ingot output being, say, half way between 35 and 40 per cent of capacity. An upturn immediately after January 1 is strictly seasonal and will no doubt occur.

Automobile production in the first five months of this year was at a reduced rate, but was quite fair. Since then it has been slipping in more and more remarkable fashion, November being estimated at 124,000 cars and trucks, United States and Canada, which would be only 27 per cent of last April's output. The year's total will run about 3,450,000, with more than two-thirds made in the first half of the year, this comparing with 5,621,716 in 1929 and 4,601,141 in 1928.

PLAN 400-MILE GAS LINE SYSTEM FROM MUSKRAT, WYO., TO NEBRASKA

By Tolbert R. Ingram

DENVER, Colo., Dec. 15.—Plans are being matured for the construction of another major natural gas pipe line project in the Rocky Mountain area upon which work is expected to begin early in the spring. The proposed system will involve the laying of approximately 400 miles of main line extending from the Muskrat Field in Fremont County, Wyoming, through Casper and Glenrock and then in a southeasterly direction through the North Platte Valley to Bridgeport, Neb., with a lateral from Orin Junction, Wyo., southward through Wheatland to Laramie. The New York Oil Co., which at present supplies Casper, Glenrock and other Wyoming towns, it is understood, is the agency through which the line will be built. Applications for franchises along the route are being made by the North Central Gas Co., a subsidiary, under the supervision of Minal E. Young, formerly general manager of the New York company.

The Northern Utilities Co., a Delaware corporation, was organized in 1928 and acquired 97 per cent of the stock of the New York Oil Co. At the time, the New York company's oil properties were segregated from its natural gas and public utilities properties, the Mountain Producers Corp. and the Salt Creek Producers Association acquiring its Salt Creek oil holdings and the Empire State Oil Co. its black oil holdings. This was followed by interests connected with the Columbia Gas & Electric Co. becoming identified with the Northern Utilities Co. These same interests are affiliated with the Western Public Service Co., the holding concern for the subsidiaries which own and operate the natural gas system from northern Colorado, eastern Utah and southwestern Wyoming to Salt Lake City and Ogden, Utah. George W. Crawford, chairman of the boards of the Columbia Gas & Electric and the Western Public Service companies, and C. A. Munroe and G. P. Gossler, directors in the Columbia company, are on the board of the Northern Utilities Co.

An application for a 25-year franchise to the town council of Douglas, and another to the Wyoming Public Service Commission for a certificate of convenience and necessity reveals that the plan provides for a line from the eastern terminus of the New York Oil Co.'s system at Glenrock to Guernsey south of the North Platte River and from that point eastward on the north side of the river to Bridgeport, Neb., with branch feeder lines to Laramie, Wyo., and Alliance, Neb. The towns to be served include Douglas, Glendo, Guernsey, Wheatland, Laramie, Lingle and Torrington, in Wyoming, and a number of towns in the North Platte Valley in Nebraska, of which Scotts Bluff and Alliance are the most important. In the Nebraska territory are a number of sugar factories operated by the Great Western Sugar Co. It is estimated that a market will be provided for 6,000,000,000 feet of gas per year.

The gas will come from the Big Sand Draw and Muskrat Fields in Fremont County, Wyoming. These two fields are estimated to have ample reserves to supply all of the requirements of the line. The Producers & Refiners Corp., a subsidiary of the Prairie Oil & Gas Co., is the principal operator in the two fields. Plans for a unit operation of the Big Sand Draw Field were reported approved recently by the Secretary of the Interior and it is expected that Muskrat will be similarly operated. The Big Sand Draw Field was discovered for heavy gas pressure in the upper Frontier in 1917 and during the next 11 years around 20,000,000,000 feet of gas was produced from that horizon. Numerous efforts were made in subsequent years to test lower horizons for oil and the Producers & Refiners recently succeeded in getting through the first big gas and found addi-

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SEATTLE-SPOKANE LINE NEGOTIATIONS ON WAY

Discussion of the possibility that Seattle and Spokane may be added to the growing list of large cities which may soon receive natural gas service is being renewed by reports that negotiations have been started to bring the fuel to the Washington cities from the recently opened Cut Bank Field at an estimated cost of $50,000,000.

A 20-inch pipe line has been proposed and it is expected that other cities in the State may also receive service from this projected development.

The supply is assured, it is stated, on account of the three wells which have already been brought in in the Cut Bank Field. One of these wells is gauged at 15,250,000 feet and another shut-in gasser awaiting a market, had an initial production of 8,000,000 feet.

There are practically no natural gas fields of proven output in the State of Washington. A low pressure line is tapping a small field in Benton County in the south central part of the State. Walla Walla is receiving some gas from this field known as the Rattlesnake Field. The formation is at 700 to 800 feet, and although the pressure is very low, the reserves are estimated as considerable.

Eastern Washington cities are within fairly close distance to the Kevin-Sunburst Field in northwestern Montana. A pipe line from this field, as well as from the Havre-Bowes Field, also in Montana, to points in Alberta, has been discussed.

Oil projects in western Washington have from time to time interested the industry, notably in the vicinity of Chehalis. A higher grade deposit in the Quillayute Indian Reservation in the Olympic peninsula has been reported by geologists.

GAS FOR MINNESOTA

Montana-Dakota Power Co. plans to extend its gas lines in north and eastern Montana and the Dakotas on into Minnesota eventually, according to a statement by W. L. Hayes of Minneapolis, company representative, while addressing the city council of Minot, N. Dak., in his request for gas franchise. The eastern terminus is now at Willston. Gas for the company's eastern systems is obtained from the Baker-Glendive region, which recently has been proved for much larger gas production.

NEW KETTLEMAN LINE IS BEING CONSIDERED

LOS ANGELES, Calif., Dec. 13.—Rapid depletion of natural gas reserves in the Los Angeles Basin may lead to the building of another large pipe line through Ventura, Fred Merker, Southern Counties Gas Co., distribution department head at Ventura announces.

The projected line would extend from Kettleman Hills along the Maricopa Road route to Ventura and thence south to the metropolis. An alternate path is along the Ridge Route. Although two big pipes are now serving gas this way, construction of a third would be difficult because of the rough country and probably cost more than a Ventura line.

With a long period of colder weather ahead, gas company officials are looking about for a way to insure the residents of Los Angeles an adequate volume of fuel.

Completion of the 16-inch line from the Elwood Field north of Santa Barbara will add heavily to the quantity available through lines from Ventura. Merker said. Coming at a pressure of 400 pounds, this Elwood gas is expected to increase the capacity of the Ventura pumping plants which pick the gas up at Ventura Avenue Field wells at 25 to 40 pounds pressure. The Elwood supply can be handled through the three lines now leading south because of its high pressure.

The Southern Counties Gas Co. operates a 12-inch line; the Southern California Gas Co., a 12-inch line, and the Ventura Fuel Co. and Southern California Gas Co., together run a 16-inch line to Los Angeles.

Increase of the capacity of the Pacific Western Oil Co. pumping plant on North Ventura Avenue from 3,500,000 to 5,000,000 feet, now under way, may have something to do with the predicted growth in demand.

PIPE LINE COMPANY LIMITED IN MARYLAND

BALTIMORE, Md., Dec. 15.—The Maryland Gas Transmission Corp. has no right to condemn property for the construction of a pipe line through the State of Maryland because it is not a public utility, according to a decision by Circuit Judge C. Gus Grason.

The corporation, which was organized under the laws of Delaware, had not gone before the Maryland Public Service Commission for authority of any kind, but has been engaged in the construction of a pipe line through the State.

Right of way was secured for the most part through agreements with property owners, but certain property owners refused to agree and the corporation instituted condemnation proceedings under a statute granting the right to foreign corporations to build pipe lines through the State.

In an opinion to the commission last August, William Cabell Bruce, general counsel for the commission, held that under this statute the company had the right to condemn land. Judge Grason, however, held that the company, being only a carrier and not a distributor, is not a public utility and therefore has no right to condemn land.

TO SPEND A BILLION

NEW YORK, Dec. 15.—Plans of the gas and electric utilities to spend $1,000,000,000 for expansion next year, announced in New Jersey to brokers and bankers by Floyd L. Carlisle, chairman of the Niagara Hudson Power Corp., aroused enthusiasm in utility circles and was accepted as evidence that there will be no curtailment of new utility construction due to the prolonged industrial slump.

Oxy-Acetylene Welding of Pipe Lines

Extensive Application in Great Construction Program of Oil, Gasoline and Natural Gas Industries

By G. O. Carter[1] and T. W. Greene[2]
[1]Consulting Engineer and [2]Engineer, Development Section, Linde Air Products Co.*

During this year of rather marked industrial depression, particularly in the steel industry, the one outstanding bright spot has been the unprecedented demand for line pipe and the construction of pipe lines. Accompanying this activity, there has, of course, been a very extensive application of oxy-acetylene welding in this industry. This year has witnessed the starting of several of the largest and longest lines in the world and has been accompanied by an extremely broad activity in the welded construction of numerous lines throughout the whole country.

To review adequately the success of oxy-acetylene welding of pipe lines, it is necessary both to review the history of welding and to present the statistical growth of the pipe line industry itself. The construction of pipe lines may be divided into two major divisions of oil and gas, although a third classification of gasoline transmission lines, has assumed and promises to become a major field in the future. To date there are approximately 99,000 miles of oil trunk and major gathering lines in the United States. There is, in addition, also about 57,000 miles of natural gas lines. Since the laying of the first high pressure oil line, extending from Cherokee Station, Okla., to Bartlesville to carry 700 pounds pressure, built in 1919-20 by Noah Wagner, superintendent of welding of the Prairie Pipe Line Co., who was awarded the Morehead medal by this association, the growth and application of oxy-acetylene welding to oil pipe lines has been phenomenal. During the last five years when construction of these lines has been greatly accelerated, welding has been almost exclusively used as standard.

More Lines to Be Needed

From the Hendricks, Yates and other West Texas pools to refineries in Oklahoma and to tidewater, there are 10 major systems to date, some of which are looped with three parallel lines, having a capacity of over 300,000 bbls. per day. All of these lines are welded and with the exception of one, are oxy-acetylene welded. Extensive as this mileage is, potential capacity of the fields which ultimately must be provided with pipe line facilities, will demand the laying of two and possibly three times the present number of lines.

The whole history of oxy-acetylene welding of oil lines, including as it does literally tens of thousands of miles carrying pressures of 750 pounds and higher, has been exceedingly gratifying. There has rarely, if ever, been a failure of the joint. In fact, there are several existing systems, involving 3,000 miles or more, in which a joint failure has yet to be experienced. Millions of barrels of oil have been and are being transported without the loss of a single barrel. Oxy-acetylene welded joint has indeed proven to be a very economical and thoroughly reliable pipe joint for oil transmission.

Due to the conservation policy of oil production and the proration of the large pools, building of long transmission lines this year has been somewhat limited as compared to the last two. There has of course been the usual building of short lines and gathering and extension of transportation systems to the new fields, as to Oklahoma City Pool and the Hobbs Field in southeastern New Mexico. There have, however, been two major installations, the Ajax pipe line, a twin or double 10-inch oil line, about 750 miles, running from Oklahoma to St. Louis and the Gulf company's line extending from Oklahoma to Pittsburgh. Oxy-acetylene welding is used exclusively in the former and extensively in the latter.

The most important activity in the pipe line industry this year has been the phenomenal development and construction of gas lines, to some extent for the transportation of manufactured gas, but principally for the transmission over long distances of natural gas. Only a few years ago the transportation of natural gas, for example 250 miles, was regarded as a wonderful achievement. This year has witnessed the starting of building of enormous lines, 22 and 24 inches in diameter, running over 1,000 miles in length in order to make available to communities in Illinois, Minnesota and Indiana the cheapest and cleanest of fuels produced in the gas field of the Panhandle section of Texas and other Mid-Continent fields. Three major 24-inch lines have been started from the Panhandle Field this year; one of these to the Omaha and south Nebraska regions; another, the Amarillo to Chicago line being built by the Continental Construction Co. for the Doherty-Insull interests and other companies, and the third one by the Missouri-Kansas Pipe Line Co. to Indianapolis and other towns in Indiana and Kentucky. Oxy-acetylene welding, with the exception of the first one, which was constructed with rubber couplings, has been used extensively in the construction of these large diameter, major projects, the lines being built by what is known as composite construction, in which two to three or more joints are welded together and then coupled.

Oxy-acetylene welding has offered to the gas, as well as to the oil industry, an economical and leak-proof joint that has proven highly satisfactory. Any review of published statistics on leakage will reveal the success of welding in reducing the leakage to a negligible figure; in fact, leakage as low as 10,000 feet per year per mile per 3-inch equivalent has been accepted as standard, a figure undreamed of before the advent of welding. It has been reported, that leakage tests have actually shown an increase in the gas in the line, although officially it has never been reported where any testing division of an operating department has credited the construction department with creating gas as a result of employing welded construction. Welding, nevertheless, has forced refinements in metering and measurements.

The more or less standard practice today has been to use solid welded construction for lines smaller than 18 inches. Solid welded construction also has been used on larger sizes, as 18 and 20 inches. Above 20-inch diameter, however, the general practice has been to use composite construction.

Composite Construction

It is desirable to review some of the reasons why composite construction is used on the larger lines because the solid welding of large diameter presents and necessitates special engineering consideration and construction. Theoretically, the unit stresses set up in a large pipe as a result of temperature drop are the same as for small line, but due to their very nature, there probably is an unequal distribution of the contraction forces in large diameter which impose higher stresses on certain elements than on others. The problem is further complicated by the introduction of differential stresses in a large line during construction. Moreover, it is exceedingly more difficult to provide adequately the slack in the lime required to compensate for contraction. The laying of wallops, which at the best provide for only about half of the contraction requirements, imposes very high stresses, stresses so high, in fact, that failure may occur unless the welding is of the highest quality. These are only temporary and are relied on lowering the pipe to the bottom of the trench but complicate the laying of the line.

In addition to the temperature stresses, there are superimposed bending stresses which from the very nature of the line cannot be minimized in the larger diameters. Smaller pipe can be easily cold bent to fit the contour of the ground closely but in the larger diameters this cannot be carried to such accuracy, with the result these strains may become very excessive. Theoretically for the same deflection the stresses will increase in proportion to the diameter which, although they may be negligible for small diameter, become very high as the pipe sizes increase. These, of course, can be reduced and alleviated by changing the construction from that of a solid continuous tube to that of a series of free length beams, as it were, by the introduction of couplings properly placed. It is for this reason, as well as the simplification in construction that composite construction has been more extensively used in the larger sizes.

Future Development

There is need for development of more satisfactory procedures and methods in the way of bending the pipe to meet the contour, of providing for expansion-contraction, and of adopting practices that will assure extremely high weld quality to withstand the strains set up on the circumferential joint in the construction and operation of large diameter lines. These features have received careful consideration and engineering thought and procedures have been developed which have proven satisfactory to meet all requirements. But further thought and time are necessary to put these into general practice and to speed up the construction to prove universally acceptable.

One development has occurred this year which may prove of decided importance in the future construction of large lines. It has been the generally accepted theory of engineers that the maximum length of pipe between rubber couplings should be limited to about 100 feet in order that the leakage will be minimized at the rubber couplings. This year has seen the establishment of a precedent in which lengths as long as 350 feet have been solid welded and it will be interesting to note what effect this will have under operation. Should this prove satisfactory, it will lead to the welding of practically the entire line, taking advantage of leak-proof and economical qualities of the welded joint, yet with simplification of construction attending the use of rubber coupled joints at long intervals.

With the transportation of gas enormous distances, economical factors have introduced and necessitated the use of extremely high pressures, which, in turn, have required special high strength pipe. Pipe in large diameters today is being used having a carbon content of .30 to .40 per cent and an ultimate strength higher than 80,000 pounds per square inch, even as high as 100,000 pounds. The welding industry, fortunately, has kept abreast of this development in materials and due to the improvements in welding and the development of special welding rods, welded joints can be made as strong as the pipe.

Welding Large Diameters

The welding of such large diameters and of pipe material of such high strength has necessitated raising the quality of the welding to such an extent that "super-

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*Before International Acetylene Association, Chicago, Ill.

DEVELOPMENT OF THE APPLICATION OF OXY-ACETYLENE WELDING PROCESS

By R. E. Fritsch
Tube Turns, Inc.*

The development of the application of oxy-acetylene welding in the fabrication and erection of piping has progressed rapidly in the past year. In the promotion of this interesting field it was found that the old adage held true—"We must crawl before we walk." Careful research on the part of the manufacturers of welding gases and equipment, and the co-operation of these organizations with designing engineers, piping fabricators, piping contractors, and the promotion of welding schools have lifted this youngster from the crawling stage and he now stands solidly on both feet—ready to take his place among the ever-increasing group of oxy-acetylene welding applications.

Due to the multiplicity of piping used in the petroleum field and the advantages offered by the oxy-acetylene welded joint, together with the progressive nature of engineering in this field, welding was readily accepted and has been applied as in no other industry. Beginning at the source of the raw material, the oil well, we find the welded joint receiving careful consideration. While the nature of the piping around the well apparently limits this field for welding, it nevertheless offers certain opportunities. Welding casings while drilling wells has been done but in a few instances only. There is a field here for welding that apparently has not been developed.

The next field—transportation of the crude oil to the refining centers—has progressed rapidly in the application of the oxy-acetylene welding of piping. The welding of long cross country oil lines has been widely discussed, but the most interesting feature of these lines where oxy-acetylene welding and cutting have played an important part often has been overlooked. I refer to the fabrication and erection of pipe line manifolds at the line pumping station.

Advantages Offered

Simplicity in design, speed in fabrication and erecting are the advantages offered by the use of the oxy-acetylene cutting and welding torch. Barrels, headers and the various manifold units usually are shop fabricated and assembled in the field. Much lighter in weight than previous methods of construction, the welded manifold apparently has proven more economical in both first cost and maintenance costs. A decided advantage is the flexibility of the welded manifold—this is especially true since the introduction of stock fittings for this type of work. The welding in itself permits changes with a minimum amount of expense and trouble and in conjunction with proper fittings for welded pipe lines these changes can be properly made with maximum economy.

At the present time there are under construction two large pipe lines which will carry crude oil from the Mid-Continent Field to refineries located in the central and east-central part of the country. There are 23 pumping stations in these two lines and in all of them the manifolds will be fabricated by using the oxy-acetylene welding and cutting torch.

The next step in this interesting field

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*Before International Acetylene Association, Chicago, Ill.

THE POROSITY OF THE HOBBS POOL BASED ON INITIAL PRODUCTION

By W. A. Rounds

The accompanying map has been prepared to give an idea of the porosity of the Hobbs Pool proper and to furnish an estimate as to the potentials of wells yet to reach the pay.

The fact that the Hobbs Pool occurs in a region which has for its basis of production subsurface highs places great importance on the geological maps of the district. This pool as contoured upon the top of the brown lime has as its outer producing margin the 700-foot level and rises to approximately the 900-foot contour as the center or high.

The pool extends from the C Section 15-19s-38e in a northwesterly direction to Section 24-18s-37e. This places the longitudinal axis at about 6½ miles and the vertical axis at about 2½ miles.

However, the cream of the production seems to be confined to the northwest part of the pool in Township 18s-38e and it is this area which is stressed in the accompanying map. It is by no means a criterion that a subsurface high will prove productive of oil as there are countless factors which may be detrimental. Perhaps the most important of these factors is porosity and it is with this in mind that the map was prepared. While actually the contours were run upon the initial production that is the same porosity, other factors remaining equal.

There are four main features of the map which stand out upon first inspection:

A. The sharp nosing of the east and south sides.

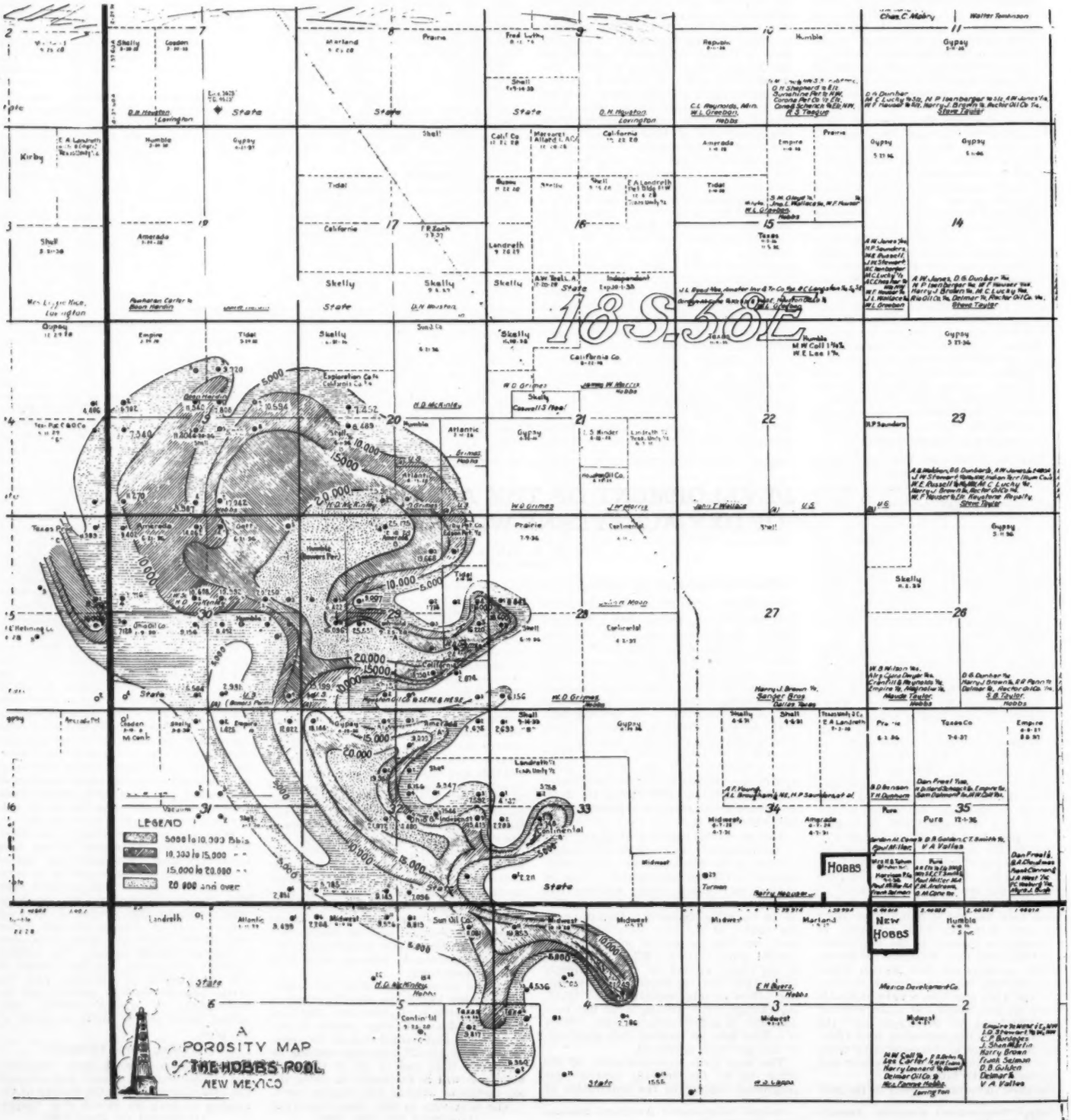
B. The uniformity of the north and west slopes.

C. The location of the highly porous areas.

D. The apparent break in the west line which can be figured as a north and west extension.

A closer study of "A" shows that these sharp breaks are indicated by more than one well with the possible exception of the break produced by Continental Oil Co.'s No. 3-B in Section 33. Perhaps the most prominent of these nosings is the one in Section 29. This was first indicated by the performance of Tidal's No. 1 Grimes which was good for 24,000 bbls. while California's No. 1, just 600 feet south of the Tidal well came in for only 2,000 bbls. The nosing became more defined and a good well in both Tidal's No. 3 and Shell's No. 2 was predicted. The nosing through the northeast corner of Section 32 was indicated by Amerada's No. 1 and Shell's No. 2 both in Section

(Continued on Page 110)



ENGINEERS CONQUER KETTLEMAN HILLS

(Continued from Page 33)

after the first well was drilled there in 1900 that the structure of the Hills was mapped and deep seated oil bodies predicted. In the meantime the oil geologist had learned many things about the occurrence of oil and had changed many of his former ideas.

It is recorded in the California State Mining Bureau Bulletin No. 19, that nine wells had been drilled in the Kettleman Hills area in 1900 without any showings of oil or gas, and from what is now known of the area this is not surprising for they were all shallow tests and located in areas where not even the shallow gas sands of the district existed.

It seems that after this flurry of drilling nothing further was done until October, 1908, when three wells were drilled and one had a slight showing of oil below 3,500 feet.

In this way parts of the field were explored in 1911, 1916, 1919, 1921, 1923 and 1925, some wells going to depths of over 6,600 feet and having showings of several small oil and gas sands, but nothing of commercial importance.

In 1925 the Standard Oil Co. of California drilled two wells and one of them located in Section 12-25-19 in the south end of the hills struck oil which flowed between the 6¼ and 8¼-inch casing and produced for a short time. This well is reported to have made about 7 bbls. of oil and 35 bbls. of water per day, and its total production was 317 bbls.

This showing, however, seemed to give much encouragement to owners of leases and land in that area and on March 2, 1927, the Milham Exploration Co. started work on its discovery well in Section 2-22-17 and drilled to 7,236 feet where oil was discovered in commercial quantities April, 1928. This well was first opened as a gasser but quickly blew into oil and is reported as a 4,200-bbl. light oil well with very rich gas.

Producing Formations

There are two producing horizons from which Kettleman Hills wells are now being produced. The upper is known as the Tulare and is of Pliocene age, and the lower, and much more important is the Temblor sand of lower Miocene age. Wells have penetrated into the Temblor formation for over 1,000 feet but no well has to date drilled through it, and this in itself will give some idea of the importance of this area and indicate its possible potential when it is recalled that three domes are approximately 24 miles long and 2 miles wide.

This would present a menace to the whole industry if unrestricted drilling were indulged in by owners of property on the three domes, but because of cost of wells, estimated at about $250,000, which includes from $25,000 to $30,000 for oil and gas separator installations, a rather unique well spacing program has been adopted.

The locations are staggered and only one well to 20 acres is drilled. To illustrate, if the first well is in the northeast corner of a section it would be located 330 feet south and 330 feet west of the corner, and the second well along a diagonal at a distance of 990 feet south and west from the corner. The third well along this diagonal would be 1,650 feet south and west of the corner.

Spacing wells south from the northeast corner the second well on the east line would be 1,650 feet south from the corner and 330 feet west of the section line. The second well along the north line of the section would be 1,650 feet west of the northeast corner along the north line and 330 feet south of it.

This pattern will space one well to each 20 acres and permit 32 wells to each section and it can be followed more or less closely in the Kettleman Hills district because of ownership of large blocks resting with a few companies.

Drilling Problems

All holes drilled in the Kettleman Hills that have reached the deep pay have been completed with rotary outfits, and both regular and the Doheny-Stone type were used. The usual casing program is:

1,500 feet of 20-inch surface casing;
5,250 feet of 13⅜-inch casing;
6,500 feet of 9⅝-inch casing;
7,300 feet of 6⅝-inch casing.

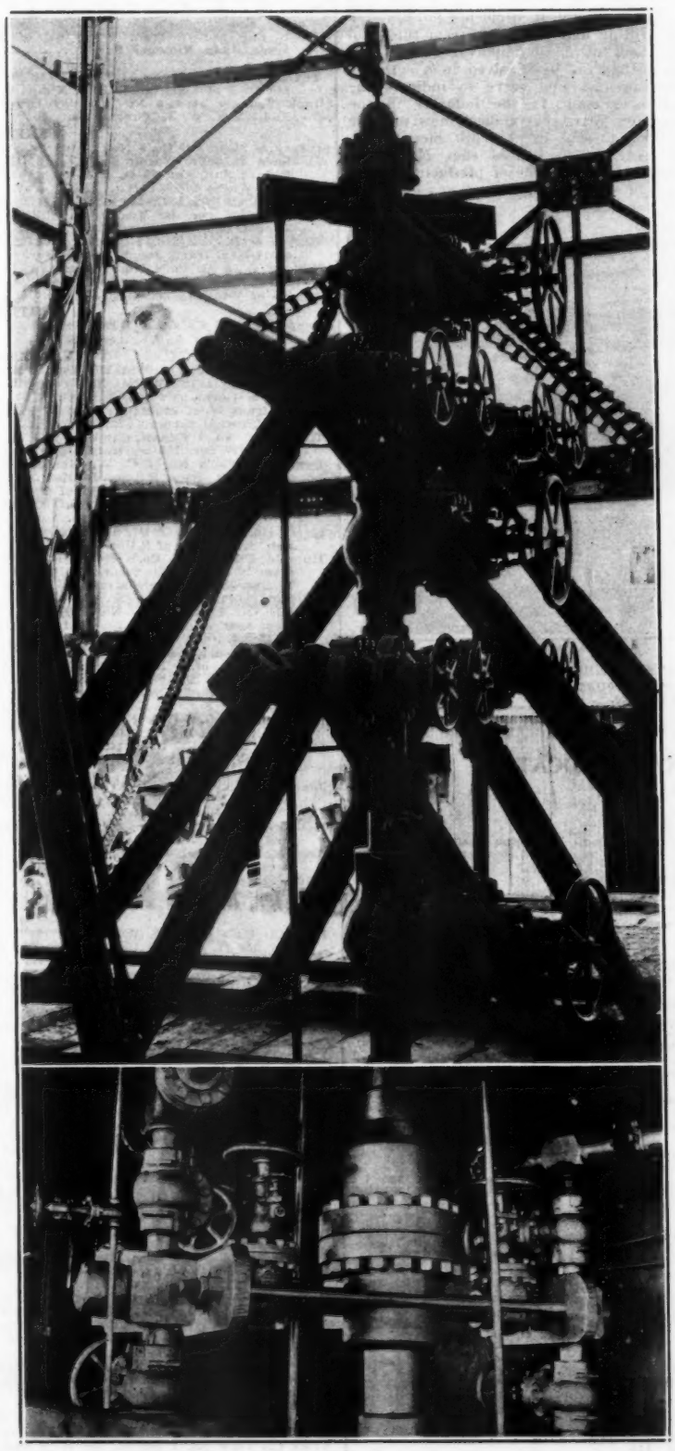
The string is completed with 160 feet, more or less, of 4¾-inch liner on the bottom of the 6⅝-inch casing. The 6⅝-inch string is perforated below 6,500 feet and cemented just above that depth. All strings of casing are cemented except the 4¾-inch liner which is perforated.

It is usual practice to produce the wells through tubing and while a few wells have used a 3-inch string, most of them are now completing with 4½-inch casing for a flow string and perforating the bottom joint with five-eighths inch holes.

This tubing is hung in the well with the lower end below the fluid level in accordance with the usual California practice, which permits lowering the tubing as the fluid level drops.

The 6⅝-inch or 7-inch casing making up the long string in the hole is usually perforated in sections over a length approximately equal to the thickness of the penetration of the well into the Temblor sand. Screens with 250 mesh opening are used over the perforated portions of the casing, and in between perforated joints blank casing is used, which has been drilled with holes through which it is possible to force cement outside of the casing and around it and to the walls of the hole.

This type of cementing job is common to California practice and has been described at some length in articles that have appeared in The Oil and Gas Journal in the past.



Upper picture, christmas tree arrangement on a Standard Oil Co. of California well in the Kettleman Hills Field, California. Lower picture, view of connections in cellar of well in high pressure Kettleman Hills Field, California.

Drill Pipe Sizes

It is common practice to use 8⅝-inch drill pipe in starting the hole, and then reduce to 6⅝-inch pipe for the 18-inch hole which is from 1,200 to 5,700 feet deep. The 10⅝ to 12¼-inch holes varying in depth from 5,700 to 6,800 feet is drilled with 5⅞-inch pipe.

The lower part of the hole is drilled with 4½-inch drill pipe and is from 7½ to 8¼-inch diameter and varies in depth from 6,800 to 7,500 feet.

The Bettis type protectors are used on all strings of drill pipe and in many wells the Bettis stabilizers are also used. It has been found necessary to use protectors on these long strings of pipe to reduce drag or friction for without them drill stems have been twisted off.

It is common practice in this field to core the sand to check locations of any breaks that may occur in it, and now that proration is in effect in this pool the wells are usually shut in after this coring is completed until such time as the committee of operators agrees that it can be produced.

Bringing in Wells

Because of the great depth and pressures encountered in these wells it is common practice to use rather heavy mud in drilling and the well is kept loaded until it has been equipped with connections and is ready to be produced.

When the tubing has been run in the hole and the well made ready to produce with all top connections in place, it is usual practice to lower the specific gravity of the rotary mud in the hole by pumping in clear water through the tubing until about 1,000 feet of mud has been removed from the upper portion of the hole.

The next operation is to swab through the inside of the tubing until the pressure is reduced low enough to permit the well to flow through the casing and around the tubing and discharge through the casinghead.

The next operation is to shut in the casinghead and build up sufficient pressure to produce the well through the tubing. The wells deliver their production into rather elaborate systems of oil and gas separators, storage tanks and relief lines, and because of the enormous pressures recorded, some of them in excess of 3,000 pounds, the flow system is provided with relief valves and safety gauges against building up back pressures in the system that would damage the surface equipment.

On one well the upper end of the flow string is carried vertically into the derrick about 60 feet and then turned at an agle of about 45 degrees and the top joint extended out between girts and braces on the derrick. This hook-up will permit the well to be blown out through the flow string into the air but the stream of gas and oil will not strike the crown-block and risk of sparks created by hard objects striking the metal parts of the rig are reduced to a minimum.

Mud Problems

As already stated this whole area is a mass of sand at the surface but in excavating for derrick and building sites it was found that shale breaks were found at some distance below the surface and it is from such clay banks that material is being secured to provide rotary mud for the wells in the Kettleman Hills district.

In digging the derrick locations power shovels are used, and this is also common practice in excavating for roads, and the material is usually soft enough to permit of moving without blasting, although at times it is necessary to blast some of the harder formations with black powder or dynamite.

In selecting a site for mining of clay for rotary mud the first essential is to select a clay bank that is made up of material that is suitable for making rotary mud of the best quality, for not all of the shales exposed at the surface, or easily reached by open cuts, is suitable for mud making purposes.

The muds for Kettleman Hills wells must have a high specific gravity to overcome the high gas pressures encountered in the Temblor sands and due to the

depth of the wells it must also have the least viscosity possible to keep circulating pressures at a minimum and reduce pump pressures all possible.

It is also necessary to have a large amount of mud available at all times to be in position to replaec gas cut mud quickly as it is produced from the wells, and also to replace mud used in drilling through the brown shale formations lying below 5,500 feet and about 1,000 feet thick, which have been found to contain salt water that requires that a considerable portion of the mud used in drilling through them be replaced frequently.

With all these problems the companies operating in the Kettleman Hills area have established very complete mud plants and are using vibrating screens for removing coarse cuttings and degassing the mud to some extent, and this precaution has been found to pay in drilling these very deep wells.

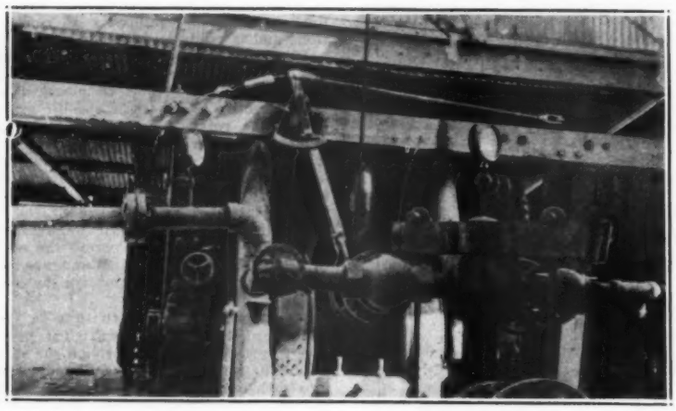
Unit Operation

It seems to be generally conceded that the operators in the Kettleman Hills area are showing a more favorable inclination toward unit operation of this pool and especially so since the Department of the Interior urged the adoption of the articles of agreement of July 25, 1929. The Secretary of the Interior and the director of the Geological Survey were instrumental in having this agreement put into effect for the purpose of enabling the permitttees to effect their titles and of protecting the public from enormous wastage from this great resource of gas and oil.

The amendments as passed are available only until January 31, 1931, which fact will necessitate the prompt preparation of a plan satisfactory to all interested if the Government is to become a party thereto prior to the date of expiration.

The courts of California have sustained the law preventing the wastage of natural gas in producing oil and this will have its effect upon production in this field in the future and under these combined conditions it would appear that development in the Kettleman Hills area will be so regulated that the field will not become a menace to the industry there and elsewhere.

The mechanical problems encountered in drilling and producing from this pool are still of great importance but they have thus far been solved in a satisfactory manner and serve to indicate the advances made in the industry in the past few years that make it now possible to drill to such great depth successfully. It has been estimated that Kettleman Hills area is capable of producing at the rate of 400,000,000 feet of gas daily for 75 years.



Typical hookup on an input well in the Kettleman Hills Field where gas is being pumped back into a water sand in an experiment in storing natural gas in underground reservoir for future use.

EAST CENTRAL TEXAS WILDCATS

(Continued from Page 67)

Texas State Oil Co.'s No. 1 Skinner, 150 ft. from E and 150 ft. from S. J. Henshaw Sur. ..... Top Woodbine sand 4,396 ft.; ready to abandon; total depth 4,665 ft.

HUNT COUNTY

Mamie S. Hammond's No. 1 W. H. Adams, center of survey, west of Branson Sur., J. A. McFarland Sur. ..... Derrick blew down.

LAMAR COUNTY

Everett & Allen's No. 1 Guest, 250 ft. S and 2,046 ft. E of 100-ac. tract, L. Roberts Sur. ..... Shut down 664 ft.

NAVARRO COUNTY

Young et al's No. 1 Farmer, 700 ft. from S and 400 ft. from E of 110-ac. farm in Finley Sur. ..... Shut down 960 ft.

POLK COUNTY

Sunshine Oil Co.'s No. 1 J. A. Collins, 313 ft. from NE 150 ft. from SE at right angles to line, A. Viesca Sur. .. Drlg. plug 3,341 ft.

RAINS COUNTY

Everett & Morrison's No. 1 Franklin, 640 ft. from S and E of 75-ac. tract in John Christian Sur., 6 miles SE of Emory ..... Spudded and shut down.

RED RIVER COUNTY

Buffington et al's No. 1 L. H. Moore, 160 ft. from S and 160 ft. from W of 100 acres, Daniel Cornelius Sur. ..... Shut down 575 ft.

Droppleman and Bunely's No. 1 J. W. Cunningham, 250 ft. E and 250 ft. S of 180-ac. tract, S. B. Shi Sur. ..... Shut down 1,290 ft.

Lloyd Oil Co.'s No. 1 R. H. Mace, 150 ft. from N and 150 ft. E of Mace 86-ac. tract, William Cullan Sur. ..... Drlg. 2,667 ft.

RUSK COUNTY

Alford et al's No. 1 W. L. Thrash, 1,103 ft. from N and 420 ft. from E of SE cor. of B. Smith Sur. ..... Derrick.

Anderson et al's No. 1 G. T. Moore, 600 ft. from E along S line of tract, Juan Ximenes Sur. ..... Derrick.

Anderson et al's No. 1 Bradford, 150 ft. from N and 150 ft. from E of Lot No. 2, Juan Ximenes Sur. .... Shut down 3,592 ft.; drill stem test; made 4 fourbles of oil and mud.

Bateman et al's No. 1 Lois Della Crim, 3,088 ft. W along N line of survey of NE cor. and 400 ft. S at right angles to N line of survey, E. G. Serlen Sur. ..... Base Pecan Gap 3,012 ft.; coring ahead 3,637 ft.

E. L. Chapman's No. 1 A. P. Finney, 150 ft. from W of E 20 acres of 102-ac. tract, Isaac G. Parker Sur. ..... Derrick.

Dan Dillon et al's No. 1 W. H. Frederick (Jake), 150 ft. from E and 150 ft. from S of 50-ac. tract, Juan Ximenes Sur. ..... Derrick.

Frank Foster et al's No. 1 Ashby, 200 ft. from N and 250 ft. from E of 75-ac. tract, Juan Ximenes Sur. .... Drlg. 3,614 ft.

Frank Foster's No. 1 Alford-Mayfield, 150 ft. N and 410 ft. from W of NE cor. of Ashby 45-ac. tract, J. Ximenes Sur. ..... Location.

Goodman's No. 1 Oscar Jones, 250 ft. from W and 150 ft. from N of railroad, Brown Sur. ..... Drlg. 1,800 ft.

L. H. Hunt's No. 1 Bradford, 1,269 ft. W and 1,083 ft. S of SW cor. of J. T. Moore's 100 acres, Juan Ximenes Sur. ..... Ready to drill in 3,650 ft.

H. L. Hunt's No. 1 Claude Ashby, 330 ft. from W and 485 ft. S of NE cor. of Ashby 109.7-ac. tract, J. Ximenes Sur. ..... Location.

Knox et al's No. 1 M. A. Melton, 363 varas N, 140 varas W, Eliz Milton Sur. ..... Location.

Lide et al's No. 1 Calvin Young, 3,015 ft. E and 3,373 ft. S, M. J. Pru Sur. ..... Moving in material.

Mass et al's No. 1 Matthews, 3,244 ft. from N, 4,356 ft. from E, Dalines Cartinas Sur. ..... Shut down 2,338 ft.

A. A. Malone's No. 1 G. T. Moore, 150 ft. from E and 150 ft. from S. Juan Ximenes Sur. ..... Digging pit.

Omaria Meredith's No. 1 Robertson, 150 ft. N along W line of George Guthrie Sur. from SE cor. and 150 ft. W of E line of Robertson 20-ac. tract, R. H. Pinney Sur. ..... Derrick (rotary).

George Page's No. 1 William Camp, 150 ft. from S and 650 ft. from W of 5-ac. tract, J. Ximenes Sur. ..... Location.

Rosenfield's No. 1 L. A. Pinkston, 150 ft. from N and 263 ft. from W of Pinkston 77-ac. tract, Maria V. Pena Sur. ..... Drlg. 2,918 ft.; top Pecan Gap 2,503 ft.

Stroube and Stroube's No. 1 H. Frederick, 156 ft. from N and 500 ft. from W of SE of Frederick 195 acres, Juan Ximenes Sur. ..... Pumped 260 bbls. 22-hr. gauge; total depth 3,618 ft.

Tex-Lloyd Oil Co.'s No. 1 Camp, 150 ft. from E and 150 ft. S of 5-ac. tract, Juan Ximenes Sur. ..... Waiting on cement to set 3,530 ft.

Jack Younger et al's No. 1 Daisy Bradford, 5,290 ft. S, 6,775 ft. W, J. Ximenes Sur. ..... Derrick.

SMITH COUNTY

Owens & Sloan Oil Co.'s No. 1 Stearns, 846 ft. along W lines of John Waller Sur. from NE cor. of J. O. Dillard Sur., and 80 ft. E at right angles to W line of J. Waller Sur. ..... Fishing 3,880 ft.

Sun Oil Co.'s No. 1 D. McGehee, 500 ft. W and 250 ft. S of SW cor. of Mrs. Julia Phillips 55-ac. tract, Thomas Quevado Sur. ..... Drlg. 3,200 ft.

Thayer & Rogers' No. 1 Willingham, 150 ft. N andW of 14.5-ac. tract, Jacob Hernin Sur. ..... Shut down 2,000 ft.

Winona O. & G. Co.'s No. 1 Freeman, 150 ft. from S. W of 89-ac. tract in A. J. Legrone Sur., 4 miles SE of Winona ..... Fishing 3,681 ft.

TITUS COUNTY

Deep Rock Oil Co.'s No. 1 Ed McElroy, C of 100 acres. K. Lewis Sur. ..... Drlg. 3,616 ft.

VAN ZANDT COUNTY

L. R. Barton's No. 1 Wamble, 300 ft. from S and W of 100-ac. tract in Pleasant Young Sur. ..... Derrick.

Cranfill & Germany's No. 1 Swain, 137 ft. N and 50 ft. from W of excess strip on W side of O. L. and L. L. Swain farm ..... Shut down 14 ft.

T. Daniels' No. 1 Fannie Cumbine, 185 ft. S and 175 ft. E of NW cor. 156-ac. tract, John Wright Sur. ..... Temporarily abnd.

Dennis Oil Co.'s No. 1 C. W. Morris, 100 ft. from N and 300 ft. from E lines fo Morris 160-ac. tract in C. L. Morris Sur., 5 miles SE of Ben Wheeler ..... Temporarily abnd.

J. C. Fare's No. 1 P. S. Hand, C of Hand's 50-ac. tract, William Shuman Sur. ..... Drlg. 3,625 ft.

Hartt Oil Co.'s No. 1 Dr. L. M. Cox and A. C. Night Sur., 1,785 ft. N of S line and 524 ft. E of W line .... Shut down 200 ft.

Humble Oil & Ref. Co.'s No. 6 R. S. Blake, 150 ft. from N and 150 ft. from W of SW cor. of Mrs. E. E Carroll farm, elevation 485 ft.; John Walling Sur. ..... Rigging up.

Humble Oil & Ref. Co.'s No. 7 Blake, 1,021 ft. N of most southerly S line, 250 ft. from W line of 201.4-ac. tract, John Walling Sur. ..... Location.

H. Helms et al's No. 1 Bogue, 647 ft. W and 155 ft. S of SE cor. of J. M. Brown 70-ac. in Marshall University Sur., SE of Van ..... Shut down 2,212 ft.

Howard & Dooley's No. 1 Elliott 188-ac. tract in W. H. Bundy Sur. ..... Derrick.

Humble Oil & Ref. Co.'s No. 1 L. A. Dowdle, 1,027 ft. N of S line and 150 ft. E of W line, William Daniel Sur. Temp. abnd. 2,987 ft.

Imperator Oil Co.'s No. 2 G. W. Carter, 175 ft. from S and 35 ft. from W of G. W. Carter 171-ac. tract, William Daniel Sur. ..... Shut down.

Jenkins et al's No. 1 V. T. Davis, SE cor. of 139.8-ac. tract, Nacogdoches County School Land ..... Shut down 3,031 ft.; pumping 8 bbls. per day.

Kelly Oil & Gas Co.'s No. 1 Lemsford, center of Lemsford tract, John Conner Sur. ..... Location.

Neil McMehory's No. 1 R. V. Murphy, 150 ft. from N and 150 ft. W of survey, H. Bailey Sur. ..... Drlg. 2,335 ft.

Maud Powell's No. 1 Killam, 1,360 ft. from NW, along SW line from most S cor. of 52-ac. tract and 425 ft. NE to SW line, Jessie Russell Sur. ..... Top Woodbine 4,690 ft.; total depth 4,806 ft.

Pure Oil Co.'s No. 3 D. R. Howell, 250 ft. S of N line and 250 ft. E of W line of lease (60 acres), Mund Gross Sur. ..... Running 7-in. csg. 2,423 ft.

Pure Oil Co.'s No. 3 Mary P. Neil (100 acres), 225 ft. S of N line and 225 ft. E of W line of lease, James Rase Sur. ..... Drlg. 2,235 ft.

Pure Oil Co.'s No. 5 N. E. Clark (89 acres), 200 ft. S of N line and 225 ft. E of W line of lease, J. Prado Sur. ..... Drlg. 2,480 ft. (rotary).

Pure Oil Co.'s No. 5 A. R. Tunnell (101.2 acres), 110 ft. E of W line and 303 ft. N of S line of lease, John Walling Sur. ..... Cement setting 2,638 ft. (rotary).

Pure Oil Co.'s No. 2 Ella York (39.6 acres), 200 ft. W of E line and 250 ft. N of S line, John Walling Sur. ..... Cement setting 312 ft (rotary).

Pure Oil Co.'s No. 3 M. F. Shirley (38 acres), 150 ft. S of N line and 150 ft. E of W line of lease, John Walling Sur. ..... Drlg. 2,240 ft.

Pure Oil Co.'s No. 3 O. L. and L. L. Swain (43.8 acres), 806 ft. S of N line and 200 ft. W of E line of lease, John Walling Sur. ..... Drlg. 300 ft.

Pure Oil Co.'s No. 2 A. D. Clark, 380 ft. NW of S cor. of Mund Gross Sur., and 170 ft. SW of NW line of lease in J. Prado Sur. ..... Cement setting 2,924 ft.

Pure Oil Co.'s No. 1 Davis, 127 ft. from S and 200 ft. from W of 139-ac. tract, Nacogdoches County School Land ..... Derrick standing.

Roy Stumpff's No. 1 Riggs, 169 ft. from E and 155 ft. from S of 3-ac. tract, William Daniel Sur. ..... Derrick (rotary).

Shell Pet. Corp.'s No. 4 Taylor, 350 ft. from N and 150 ft. from E of the J. T. Taylor 30-ac. tract, John Walling Sur. ..... Rigging up.

The Texas Company's No. 4 R. A. Tunnell, 325 ft. E of most easternly W line and 217 ft. S of N line of lease, John Walling Sur. ..... T. D. 2,731 ft.; waiting on cement to set.

Van Oil Association's No. 1 Tankersley, 200 ft. from E and 1,000 ft. from S of farm, L. Landers Sur. .... Drlg. 1,028 ft.

Vitek Oil Co.'s No. 1 Smith, 150 ft. S and 15 ft. from W of L. A. Smith 40-ac. farm in John Walling Sur... Derrick.

WOOD COUNTY

Loche & Clark's No. 1 A. C. Pick, 165 ft. S of NE cor. G. C. Reeves 25-ac. tract, Daniel Fuller Sur. .... Shut down 997 ft.

15 FEET OF CORE
100% RECOVERY
FROM 8035′ TO 8050′

This photograph was taken in the Refugio field on October 27, 1930, on Moss Heard No. 1, Block 111, Refugio Townsite, L. L. Smith, operator.

The top seven feet of this core was in shale — the remaining eight feet, hard sandy lime.

This was the third run made by this head and practically no wear was shown.

Prior to this run, Reed-Elliott Soft Formation Heads were used, and almost 100% recovery was secured in each instance.

Core Bit Reamer Bodies were used in connection with both hard and soft formation core bit heads.

For full recovery — at low cost Reed Core Bits have no equal.

Gulf Coast and Mid-Continent distributors of
MARTIN-DECKER PRODUCTS

Top row: **Mr. Pate, Mr. Collier, Manager of Continental Supply Co., Refugio, and Mr. Mosier, Driller.**
Bottom row: **Three members of crew.**

REED ROLLER BIT CO.

HOUSTON, TEXAS - - - - - - - - NEW YORK, N. Y.
LOS ANGELES, CALIFORNIA - - - OKLAHOMA CITY, OKLA.

Eastern Completions Mostly Gas Wells

Only Four Oil Producers With Total of 21 Bbls. Ten Dry Holes. Fair Gasser in Ohio, Two in West Virginia

By Staff Correspondent

PITTSBURGH, Pa., Dec. 15.—After a period of fair activity operations in the eastern fields are now tapering down as drilling schedules in the fiscal year are completed. That the curtailment program adopted by many of the eastern operators is being practiced is evident from the declining pipe line runs and reduction in the initial production reported from new completions. During the past week there were but 26 wells completed in all districts of the eastern fields, 12 being gas wells, 4 oil producers, with an initial production of only 21 bbls., and 10 dry holes. In southeast Ohio there were no large wells and but one fair gas well. In West Virginia there were two good gas wells and several fair gassers.

The largest well reported in the eastern area was in Cabin Creek district, Kanawha County, West Virginia, and was the Winifrede Gas Co.'s No. 10 on its own property. It was drilled in the Big lime at 1,400 feet and is making about 2,500,000 feet. Another fair gasser was in Sherman district, Boone County, where the Pure Oil Co. completed No. 47 on the Federal Coal Co. tract in the Berea sand at 2,545 feet. It is good for over 1,500,000 feet.

SOUTHEAST OHIO

In southeast Ohio the only well of any size was the Preston Oil Co.'s second test on the Edward Goldesmith farm in Lot 18, Hopewell Township, Licking County, which was completed in the Clinton sand and is showing for 500,000 feet of gas. In Highland Township, Muskingum County, Fetty and Louchery completed a test well on the Russell and White property in the Injun sand at 642 feet and have a gas well with no trace of oil in the pay.

In Athens County the Gordon Oil Co. completed a test on the Frank Patton farm, NE of Section 23, York Township. It was drilled to a depth of 3,320 feet and in the Clinton sand and was a dry hole. Another disappointment was the test of Marion H. Harper and others on the Marion Harper farm in the SE of Section 32, Enoch Township, Noble County, which was drilled in the Stray sand at 61 feet with no showing of oil or gas.

In the shallow drilling in Medina County, E. R. Edson & Son Co. completed three wells, two of them producers. On Lot 20, Section 16, Chatham County, this company completed No. 7 on the M. A. and Eva Franks farm to a depth of 470 feet and after shot it produced 15 bbls. the first 24 hours. On Lot 6, Section 13, same township, their No. 10 on the Archie E. Packard farm went to 383 feet and made 4 bbls. the first day after shot. On Lot 1 of the same section their No. 34 on the W. H. Ripley farm was dry at a depth of 502 feet.

In Muskinguin County W. R. Crawley and others completed No. 3 on the G. L. Watson farm in Section 16, Brush Creek Township, in the Clinton sand at a depth of 4,210 feet and it was a duster.

Drilling in Ohio

In Belmont County the Central Gas Co. has a rig standing on the D. L. Hagan farm for a second test in Section 1, Somerset Township. In Monroe County, M. Stoffel and others are building a rig for No. 3 on the M. Stoffel farm, Section 11, Bethel Township. In Washington Township, Monroe County, Shay McMullin Co. is drilling No. 3 on the A. H. Cronin farm in Section 5 and is down to 900 feet. In Athens County Clark and others have reached 600 feet on the J. S. Radford farm, Lot 116, Athens Township, and in Section 18, Canaan Township, Charles D. Mosher and others are drilling a ninth well on the Lena L. Bean farm. In Marion Township, Marion County, Charles Woodyard and others are drilling No. 9 on the Charles Woodyard farm in Section 24. In Meigs County, Tyree and Hovis are down to 400 feet on the Ella Cobb farm, Sutton Township.

WEST VIRGINIA

There were two oil wells completed in West Virginia, both small producers. In Roane County the Heck Oil Co. completed a test on the A. W. Thorn farm in Reedy district, showing for 1 bbl. a day in the Berea sand at 2,581 feet. On the waters of Twelve Pole Creek, Butler district, Wayne County, Meabon and Huffman drilled a test on the Stonewall Jackson farm deeper from the Berea sand and through the Brown shale. It was dry in the Brown shale and good for 1 bbl. a day in the Berea sand.

Gas Wells

In Sherman district, Boone County, Godfrey L. Cabot completed No. 3 on the Bruin heirs farm at a depth of 3,331 feet, and it was dry in all formations. In Cabell County, on the waters of Kilgore Creek, Grant district, the Harshbarger Oil & Gas Co. completed No. 61 on the W. H. Sunderland farm through the Brawn shale and it is showing for a fair gas well from both the Berea and Brown shale. One mile southeast of the town of Milton, W. H. Kirtley & Co. completed a test well on the William Chambers farm, on the waters of Mud River, Grant district. It was drilled deeper from the Berea sand to the Brown shale and is showing for 300,000 feet. In the same district, and on the waters of Dry Creek, the Larner Gas Co. drilled No. 113 on the E. M. Chapman farm in the Brown shale and have a gas well rated at 150,000 feet a day.

In Calhoun County, A. Rothwell completed a test on the T. C. Cain farm, Sheridan district, and it is a light gas well natural in the Injun sand at 2,440 feet. In Lee district, McCall and others drilled a test on the Frank Wallbrown farm to 2,575 feet and in the Berea sand, which was dry. In Washington district, Godfrey L. Cabot completed a test well on the George Hunt farm through the Berea and in the Brown shale. It was dry in all formations.

In Fayette County, Godfrey L. Cabot completed his No. 3 on the Mecca Coal Co. tract in Kanawha district and it is a dry hole at a depth of 2,703 feet. The McCall Drilling Co. completed a small gas well in its test on the Edward Dargan farm in Court House district, Lewis County. In Cabin Creek district, Kanawha County, Godfrey L. Cabot drilled No. 20 on the Quincy Coal Co. property to 2,207 feet and in the Big Injun sand and it will make a fair gas well.

In Roane County the Union Gas Co. completed a test well on the Charles Nichols farm in Smithfield district in the Injun sand at 2,195 feet and it is a light gas well. In Wayne County the Wayne United Gas Co. completed a very fair gas well in No. 47 on its own property in Lincoln district and at a depth of 2,066 feet.

Drilling in West Virginia

The Hope Natural Gas Co. has completed a rig on the Shirley Goff farm in Murphy district, Ritchie County. In Lincoln County, Louis R. Sweetland, agent, is moving in tools to start a test on the T. J. Hoskins farm in Carrol district, and at the same time has made a location for a second well. In Washington district, Boone County, W. G. McCorkle and others are building a rig for a second test on the J. Albert Covert farm. In Chapmanville district, Logan County, the Hope Natural Gas Co. is drilling a well on the Elizabeth P. Stowers farm deeper. In Grant district, Cabell County, the Hamilton Gas Co. has reached 3,378 feet in drilling deeper on the Jennie Reynolds farm.

In Jackson County, J. H. Starr and others are down to 2,630 feet on the J. H. Starr farm, Grant district. In Washington district the Pine Knot Oil Co. is fishing for tools after reaching 825 feet on the J. T. Phillips farm. In Ravenswood district the Heck Oil Co. has the material on the ground for No. 3 on the B. A. Shaffer farm, and part of the material ready for a second well on the William Boggess farm.

In Gilmer County the Chartiers Oil Co. has a rig ready for a well on the Baptist Home Missionary lot in Center district. In the same district the West Virginia Utilities Co. has spudded in and started drilling No. 3 on the Waldo Bush heirs farm, and the Carnegie Natural Gas Co. has made a location for No. 3 on the L. Wilmoth farm. In DeKalb district, parts of which are still lacking water, L. C. Waggoner has a rig ready on the A. L. Radabaugh farm, and A. E. Ellis and others are building a rig for a second well on the Bush heirs farm, No. 1 being a fair gas well. Two other rigs in this section are the test by Clem Morris and others on the W. F. Roberts farm, and the test by Frank Golden and others on the H. E. Engle heirs farm. James A. Tierney is shut down at 1,450 feet in his test on the F. G. Hardman farm for lack of water, and F. G. Davis is having the same trouble in his test on the Alva J. Hardman farm after reaching 450 feet, both being in DeKalb district. In this district the Bowser Oil Co. has a fishing job at 1,800 feet in No. 2 on the John R. Ralston farm. The Gainer Oil & Gas Co. has spudded in and is drilling at 150 feet its second well on the Spencer Collins farm, DeKalb district, and H. Roberts and others are drilling their No. 3 on the G. W. Miller farm at 800 feet. In Troy district, A. L. Britton has reached 1,400 feet on the C. T. Law farm.

In Putnam County the Sowders Oil & Gas Co. has reached the sand in No. 3 on the Pines and Moore farm in Scott district. In the same district, J. V. Reishman is shut down at 900 feet for water in his test on the William Dent farm. H. J. Peterman is about completed in his No. 3 on the R. L. Morris farm, Scott district, and in the same district H. C. Zogg has made a location for No. 3 on the Maddox heirs farm, and the Celia Oil & Gas Co. for No. 5 on the John Tormey farm.

In Marion County there is not very much drilling. The M. W. P. P. S. Co. is shut down at 3,000 feet in its test on the L. Hawkenberry farm in Lincoln district. S. N. Elliott has reached 3,165 feet in his No. 4 on the Arlie T. Hibbs farm, Mannington district. In Grant district the Owens Illinois Glass Co. is down to 3,100 feet on the Mary E. Hartlet farm, and has a rig standing on the Joseph Orth farm.

In Wayne County, and Ceredo district, W. P. Floyd is drilling on the J. H. and J. B. Start farm and has reached the 100-foot level. In Lincoln district the Owens Bottle Co. has about completed its test on the W. R. Parsley farm. The Wayne United Gas Co., in addition to the fair gas well completed this week, is down to 1,720 feet in No. 40 on its own tract, have spudded in and is drilling at 350 feet No. 48, and has staked out locations for No. 44 and No. 49. In Butler district the Chartiers Oil Co. is about in the sand at 3,400 feet in its second test on the Anna Streuber farm and has a rig standing for a test on the W. W. Large farm.

In Mingo County the Ohio & Southern Gas Co. is rigging up for a test on

(Continued on Page 84)

LEGRANDE POOL SOON DRILLED UP IF PRESENT RATE IS CONTINUED

By George A. Whitney
Staff Correspondent, Kentucky Fields

HORSE CAVE, Ky., Dec. 15.—The drills are still being rushed in the new Legrande Pool opened a couple of months ago, the oil being found in the Corniferous formation. Good flush production was found in some of the wells and on account of the shutdown in the Owensboro Field many of the idle tools were moved to the new Eldorado which has practically been defined according to late reports and does not cover a large area. The shallowness of the wells and the flush production was enough to encourage activity, but like many other shallow pools it has no doubt seen its best day. The best well was rated at 800 bbls. initial which was drilled by Carpenter & Frost on the Carden-Dowling property. Numerous wells that were flowing their production have stopped and from now on the new ones drilled in will not show the big initial production of the earlier wells. The Stoll company is taking approximately 75 per cent of the production. The production of the pool in October was 700 bbls. a day.

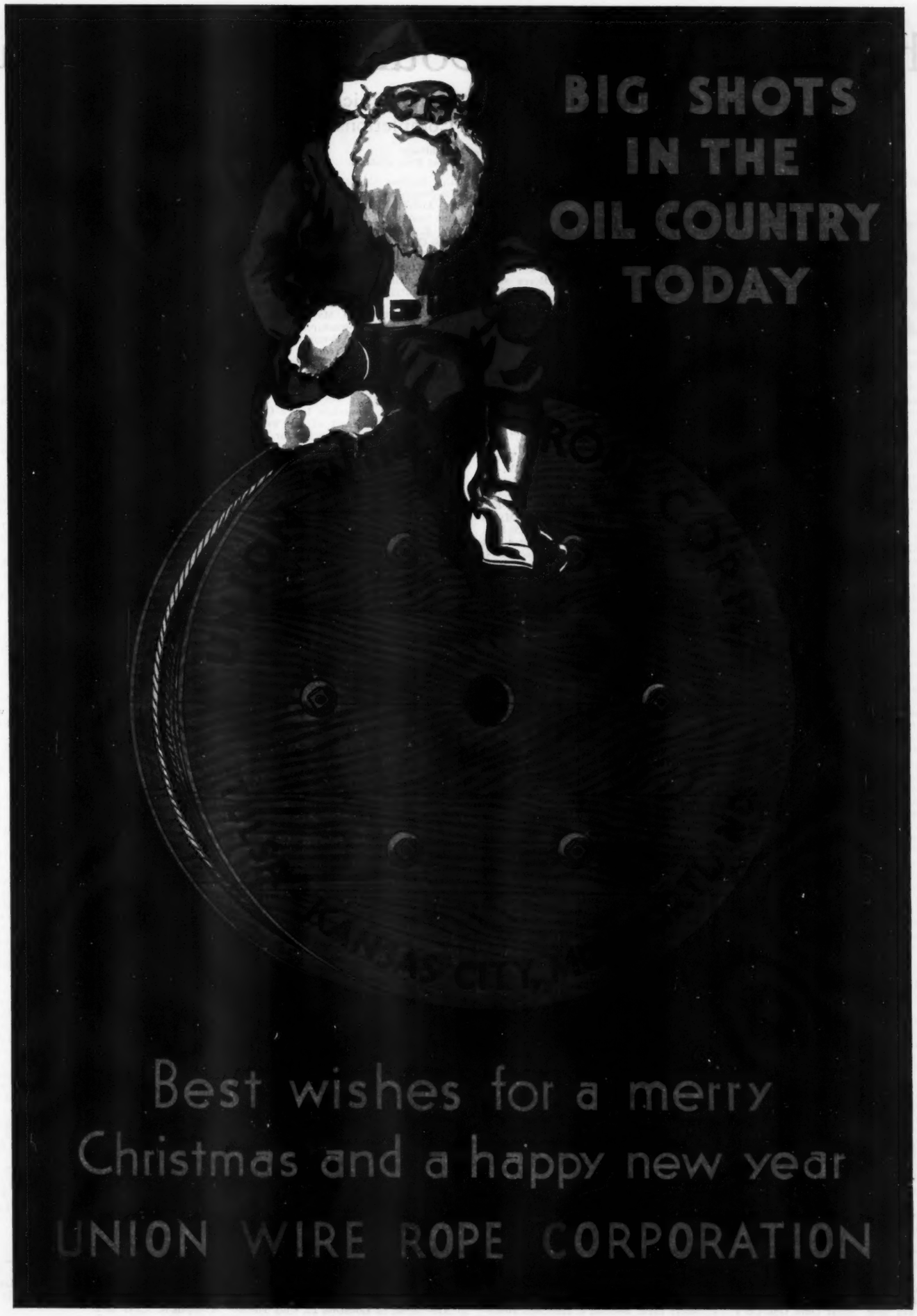
Going back to the early days of the field it is learned that on September 19, 1930, Davis & Norris, well-known producers of oil in the Barren County Field, brought in a well near Legrande or Seymour, about 4 or 5 miles from Bear Wallow, Ky. The Stoll Oil Refining Co. has for many years served the old oil fields around Oil City and Lectra, in Barren County, Kentucky. The pipe line runs from that field, better known as the Glasgow Field, had gone down to about 100 bbls. a day, making the old line almost too small to operate. When the news of the new well came in the Stoil Oil Refining Co. laid a line of 11 miles from the oil well to Horse Cave, Ky., where the company already owned a sidetrack. A storage tank and loading rack were erected at that point and within nine days after the well came in the pipe line was taking all the oil, running about eight hours a day, not only all of the oil, but all the surplus that had accumulated in nine days.

Rush to Drill

The western Kentucky oil fields having been curtailed due to inability to sell the crude, as soon as this new flowing well came in about 60 rigs started for this new field, and within a week 40 rigs were drilling in that immediate territory. One well came in and flowed for 24 hours and has since been pumped. Several other wells were dry or small gas producers. Some wells that started at large production have fallen off, although with so many rigs drilling a very large number of wells are coming in, some days as many as three. Due to the flush production the pipe line has been unable to connect all the leases at once and has been able to connect only one or two at a time, owing to lack of engines and power to handle the oil from the field or farm tanks to the pipe line, but this will be remedied shortly.

President Curry of the Kentucky Producers Association said that so far as he can see the pool is very similar to the

(Continued on Page 84)


BIG SHOTS
IN THE
OIL COUNTRY
TODAY
Best wishes for a merry
Christmas and a happy new year
UNION WIRE ROPE CORPORATION

Showing in Seneca County, Ohio, Wildcat

Two Completions in Hardin County Which Remains Most Active in Tiffin Field. Sixteen Completions in Central Ohio

By George A. Whitney
Staff Correspondent, Central West Fields

FINDLAY, Ohio, Dec. 15.—In the old Lima division in northwestern Ohio, but two completions were reported, both being in Pleasants Township, Hardin County, where the most drilling activity in the field is being shown. Bert Sheldon's second test on the Leroy G. Doll farm, Section 6, is an average gas producer from the Trenton lime at a total depth of 1,560 feet, the average gas well of this field running from a small producer to as high as 500,000 feet. Barnaby and others' No. 5 Jacob Kurt farm, same section and township, is a light gas producer from the Trenton at 1,351 feet. Barnaby and others are drilling Nos. 6 and 7 Fred Kurt farm.

The Honey Creek Oil & Gas Co.'s test on the G. H. Berton farm, Section 33, Scipo Township, Seneca County, and in the Tiffin Field, may yet surprise the owners and natives of that section of the county. This well topped the Trenton at 2,001 feet, got a showing of oil at 2,305 feet, and went to a total depth of 2,375 feet or 374 feet into this formation and practically had what was a dry hole and was to be abandoned, but after standing for quite a long period, it filled up a few hundred feet with fluid and will be given a further test. It is a wildcat a long distance from any production.

CENTRAL OHIO

Sixteen completions were reported from the Central Ohio Field, six producing wells with an initial of 205 bbls., five dry holes and five gas wells, while in new work starting there were eight locations made and 20 wells started spudding, a total of 28, not half bad at this season of the year as there are many wells shut down that will be completed later.

Ashland County reported but one completion made by Clifford and Kolb, in No. 7 Ira Myers farm, Section 29, Perry Township, with a 24-hour gauge of 4 bbls., from 685-700 feet. In Lake Township, Farmer and others have a gas and oil showing in No. 1 Mitchell Stewart farm, Section 21, at from 780-92 feet, but undecided whether to shoot it at the present depth or go for a deeper pay. Robinson and others are drilling Nos. 6 and 7 on the C. I. Sellers farm, Section 9, same township.

In Medina County, Chatham Township, Curtis and others' No. 5 Harriett Broadsword farm, Section 21, was dry at 390 feet, no Berea sand being found. Oko Oil & Gas Co. has a showing of oil in No. 16 Henry Essig farm, from 348-52 feet, which is the Berea, but will give it a shot. In Lafayette Township, Ohio Fuel Gas Co.'s No. 1-5,351 Sum Kulp farm, Section 20, is a gas well.

In Lorain County, Carlisle Township, the Ohio Fuel Gas Co. reports a dry hole in No. 2-5,331 on the John Solet farm, Lot 19.

In Wayne County, Cannan Township, the Preston Oil Co.'s No. 1-1,143 C. L. Sell farm, Section 15, is reported with an initial of 45 bbls. Harmon & George are drilling No. 2 Effie M. Bates farm, Section 20, Chester Township.

In Richland County, Monroe Township, Ohio Fuel Gas Co.'s No. 1-5,233 J. C. Tucker farm, Section 33, is a gas producer.

In Knox County, Butler Township, the Preston Oil Co.'s No. 2-1,434 A. J. Beatty farm, Section 21, produced an initial of 19 bbls. from 3,127-78 feet. In Brown Township, Ohio Fuel Gas Co.'s No. 2-1,577 A. F. Ross farm, is reported for 12 bbls. initial, and its No. 3-5,324 William H. Doup farm, Section 17, is reported a dry hole. East Ohio Gas Co.'s No. 6 Maud S. Thrasher farm, Section 28, same township, is a light gas well from 2,861-70 feet.

In Coshocton County, Pike Township, McClay Brothers' No. 1 Austin L. Rine farm, Section 5, is a gas well from 2,944-54 feet. Ohio Fuel Gas Co.'s No. 1-5,349 B. A. Povelson farm, Franklin Township, is a light gas well in the Berea sand, from 1,130-1,325 feet, and reported to have gone to 2,885 feet where another gas showing was found. Preston Oil Co. is drilling No. 1-1,462 J. L. Myers farm, Section 6, Perry Township.

Summitt County

In Summitt County no completions were reported. F. A. Brendall and others are drilling No. 2 Charles E. Wise farm, Section 24, Franklin Township, and Smith and others are drilling No. 2 Charles A. Smith farm, Section 19, Greene Township.

In Licking County, Fallsburg Township, Norpel and others' No. 3 W. D. Booth farm, Section 14, is credited with an initial of 90 bbls. from 2,990-3,042 feet, and I. C. Robinson has a 35-bbl. initial producer in No. 4 Dora Myers farm, same section, from 2,972-3,020 feet. Emerald Petroleum Co. is starting a test in the James H. Fowls farm, Section 4, same township, and Sterl Brown is starting No. 9 H. A. Noland farm, Section 21, same township. Everette Gas Co. is drilling No. 3 Felix Claypool farm, Section 7, Hanover Township. Wehrle Gas Co. is drilling No. 1 Charles Flory, in the corporate limits of Newark. The Preston Oil Co. abandoned locations for No. 1-1,455 J. A. Hughes farm, Sections 2 and 3, Mary Ann Township, and No. 1-1,457 G. C. Mauk farm, Section 3, same township.

In Wayne Township, Muskingum County, the Atha Co. has shut down three wells on account of cold weather. They are No. 1 George Henile, Section 8, at a depth of 3,526 feet; No. 1 F. P. Arnold farm, Section 1, at 3,900 feet; and No. 1 Julia Dietenbach, Sections 9 and 12, at 3,940 feet. Same company is drilling No. 2 William T. Osborne farm, Section 7, Rich Hill Township, same county. Hopewell Gas & Fuel Co. is starting a test on the John C. Sidle farm, Section 6, Hopewell Township, Muskingum County. McLaughlin Brothers are drilling No. 7 Charles E. Vensel farm, Section 15, Monroe Township, and Fetty & Louchey are drilling No. 2 Freeman Russell farm, Section 1, Highland Township. In Perry Township, Wittmer Oil & Gas Co. is drilling No. 1 Sidney A. Taylor farm, Section 20.

In Stark County, Penn Oil & Gas Co. is drilling No. 2 Mary A. Killinger farm, Section 6, Jackson Township.

In Fairfield County, Richland Township, Patton & Bishop are drilling No. 2 Edward Morrow farm, Section 28.

In Belmont County, Somerset Township, W. C. McBride's No. 4 Howell-Dement, Section 1, is reported dry at a depth of 1,955 feet. Wittmer Oil & Gas Co. drilled a dry hole on the T. Workman, Section 34, Richland Township, in the Berea sand from 1,709-1,801 feet. Frank Stranges and others are fishing at their No. 3 on the Shriver-Dallas farm, Section 27, Union Township.

INDIANA

Weather conditions are against development work in any part of Indiana, and few completions are reported, the best being the Siosi Oil Corp.'s second test in the northwest corner of the Thomas & Williams farm, Section 32, Prairie Creek Township, Vigo County, with an initial production of 25 bbls. at a total depth of 2,219 feet.

Lee Petroleum Co.'s test on the Alva C. Smith farm, Section 4, Harrison Township, Daviess County, was a duster at 678 feet. Same company is drilling on the Andrew Hinsel farm, Section 10, same township.

V. E. Bolyard and others' test on the Globe Coal Co.'s land, Section 25, Patoka Township, is reported showing a volume of 2,000,000 feet of gas, and No. 2, same tract, is drilling. In Monroe Township, same county, the Ohio Oil Co. abandoned No. 6 Moses Skinner farm, NE, Section 23, also No. 6 W. D. Mason farm, NW, Section 35, same township.

Murphy Oil Co., of Pennsylvania, abandoned No. 17 Alice Frederick farm, NE, Section 6, Washington Township, Gibson County.

In the southern part of the State, A. F. Glenn and others' No. 1 Isaac Seibert farm, in Tobin Township, Perry County, one-half mile southeast of the wells on the Haefele farm, is reported for 5 bbls.

Blackford County is to have its first well drilled for a long period by Walter Todd and others on the John Glancy farm, Section 22, Washington Township. This is an area that back in the early nineties had some remarkably fine oil and gas producers.

Indiana Oil and Gas Fields

Compiled by Paul F. Simpson, state gas supervisor, department of conservation, division of geology:

Blackford County—Walter Todd and others are starting a well on the John Clancy farm, Section 22, Washington Township.

Crawford County—A supply of gas was reported in a well drilled by the Louisville Cement Co. at Milltown.

Daviess County—Norris and Patterson are drilling No. 1 Joseph Haskins, in Section 4, Harrison Township. The Lee Petroleum Co. is drilling No. 1 Andrew Himsel, Section 10, same township. The same company completed and plugged No. 1 Alva C. Smith, in Section 4, at 678 feet.

Hamilton County—Holeman and others have temporarily halted development around the oil well found on the Walter Edwards farm in Section 13, Washington Township, until a market can be found for the oil.

Hancock County—The Knightstown Natural Gas Co. is drilling its fifth well on the Charles E. Ramsey farm near Charlottesville.

Knox County—The Gardner Petroleum Co. is drilling No. 1 Mary E. Bond in Section 15, Busseron Tonwship. Wells & Joyes are drilling No. 1 Elizabeth Roach in Donation 211, same township.

Madison County—The Pendleton Naturay Gas Co. is drilling on the Jesse M. Schuman farm, Section 7, Fall Creek Township.

Monroe County—The Saddle Creek Oil Co.'s well on the Durbin Hessler farm, in Section 4, Polk Township, is shut down at the top of the Trenton.

Perry County—A. F. Glenn and others found the Jackson sand dry in their test on the Luke Kellams land in Section 3, Tobin Township, but will continue drilling to the Mississippi lime. Seitz and others completed a shallow producer on the Isaac Seibert farm, in Tobin Township, one-half mile southeast of the Haefele wells.

Pike County—No. 4 H. Atkinson, in Section 22, Logan Township, drilled by the United Oil Corp., produced only 1 bbl. from a sand at 994 feet. C. C. Taliaferro's wildcat on the Frank Bilderback farm, Section 23, Washington Township, started at 1,000,000 feet from a depth of 1,050-57 feet. The Mahutska Oil Co. is drilling on the J. A. Davidson lease in Section 20, Clay Township. The Bement Co. was reported to have completed a 1,000,000-foot gas well on the Phoebe McAtee farm, in Location 12, Clay Township. In the Alford Pool a 30-bbl. well was reported on the Morrison farm at 1,240 feet. The second well on the Globe Coal Co. land is down 900 feet, and the first is making 2,000,000 feet of gas; they are in Section 25, Patoka Township. Claud Noble and others completed a well on the Byron Preston farm in Section 30, Washington Township, which started at 70 bbls. from 1,114-26 feet. C. C. Talliaferro will drill on the Sarah Stansell farm, 1 mile north of Petersburg.

Porter County—The test being drilled by the San Juan Coal & Oil Co. on the Arthur Hanrahan farm, north of Valparaiso, is down about 700 feet. A showing of gas has been reported.

Shelby County—A test has been started on the William McKenson farm in Section 19, Hendricks Township.

Spencer County—The Santa Fe Oil Co., formerly Roger Williams and others, is getting steady production from No. 1 Marie Berg in Huff Township.

Sullivan County—Fred Bays got a dry hole at 800 feet in the William Jamieson test in Section 32, Hamilton Township. Huntsman and others are drilling No. 1 Katherine Piety in Section 7, Turman Township. A well is reported starting on the Riggs farm near Shelburn.

Vanderburg County—The Vanderburg Oil Co. is drilling on the George Hornby farm in Section 32, Center Township. A good showing of gas was struck at 245 feet.

ILLINOIS

More wells were pulled out and abandoned during the past week in Illinois than were completed, there being only a few new ones brought in, well scattered over the State. In the Robinson Field, Montgomery Township, Crawford County, John Phipps drilled in a light gas well 600 feet from the south line and 1,450 feet from the east line of the J. M. Laughead heirs farm, SE, Section 3, at a depth of 900 feet. W. C. McBride, Inc., abandoned No. 1 on the Leslie Magill farm, Section 3, same township.

No completions were reported from the Bridgeport Field in Lawrence County, but in Petty Township, the Ohio Oil Co. abandoned Nos. 5 and 11 C. S. Waggoner farm, NE, Section 2; No. 12 R. M. Hardacre farm, NE, Section 12; No. 3 Ethel M. Smith farm, SE, Section 36; and No. 12 Nancy J. Updike No. 2 farm, NE, Section 35, all in Petty Township.

In southwestern Illinois, in the Dupo Field of Sugar Loaf Township, St. Clair County, Joseph May and others brought in a dry hole in No. 1 on the Charles Hoffman farm, Section 27, at a depth of 900 feet. In this same field, St. Clair County Oil Co. abandoned No. 1 F. and E. Hutchinson farm, SE, Section 21, same township. Paul J. Campbell and others abandoned No. 1 Wright & Bucklin property, same quarter section, and W. E. Simpson and others abandoned No. 1 W. Lindeman, Lot 38, same township.

In Monroe County, Osborne and others' No. 1 on the Antone Gaertner farm, NW, Section 2, produced 1 bbl. from 390-437 feet, also No. 2 same farm, good for 2 bbls. from 403-38 feet.

In Marion County, Sandoval Township, the Ohio Oil Co. abandoned Nos. 1, 2, 3, 6 and 7 A. O. Terry farm, SW, Section 4.

In Centralia Township, Marion County, George T. Webster abandoned No. 1 G. C. and F. J. Kalberkamp farm, SW, Section 19, and No. 4 on the Centralia Coal Co.'s property, NW, Section 30, same township.

MISSOURI

St. Elco Development Co.'s No. 2 on the R. J. Cullie property, in Survey No. 1,226, St. Ferdinand Township, St. Louis County, Missouri, proved a dry hole at a depth of 1,241 feet.

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Technical Questions Answered

BY CHARLES K. FRANCIS, PH.D., TECHNICAL EDITOR

This department of The Oil and Gas Journal is devoted to the manufacturing branches of the oil industry.

Those connected with the refining of crude petroleum, the manufacture of natural gasoline and closely allied industries are invited to submit their problems to Dr. C. K. Francis, technical editor. The department was created for the purpose of aiding managers, superintendents, engineers, chemists and all those engaged in the various phases of plant operation; also those connected with the marketing and utilization of petroleum products.

Questions should be submitted in as much detail as possible so as to assure a satisfactory answer.

All inquiries should be signed and if other than the given initials are to be used please indicate the desired letters.

Questions involving patented processes, intricate formulas and calculations and estimates of costs, for obvious reasons, cannot be answered. The replies will appear on this page within a reasonable time.

GLOSSARY OF PETROLEUM TERMS

Do you know whether anyone has ever compiled and published an encyclopedia of refinery and natural gasoline manufacturing terms and names? If so can you tell me where I might procure a copy and the cost, if possible? This request arose from an experience which I had when I was searching for a certain word that might be applied to cover the entire range of gasolines.—W. J. H.

Glossaries of petroleum terms may be found in The American Petroleum Industry, by Bacon and Hamor, Vol. 11, p. 845. Published by McGraw-Hill Book Co., New York, cost $10. The glossary presented in this chapter contains a list of the important bituminous minerals and products, including oxygenated hydrocarbons; the terms used in naphthology, and the available trade names of the products of petroleum. A part of the definition for gasoline, on page 870, states: "This name has been applied broadly to the lighter products derived from petroleum ranging in gravity from 50° to the high gravity products, 90° and over, which are extracted from the still gases. . . ."

Another glossary is that in Handbook of the Petroleum Industry, by Day, Vol. 11, page 854; Publishers John Wiley & Sons, New York, cost $15. On page 890 the first part of the definition for gasoline is: "The commercial name applied broadly to the lighter products derived from the distillation of petroleum. It is volatile, inflammable, and used chiefly as a fuel in internal combustion engines of the automobile type; also as a solvent for fats and oils, for the generation of gas, and as a fuel in vapor stoves."

Gasoline is defined by the American Society for Testing Materials, Report of Committee D-2, Proceedings of the Society, page 288, 1925. "A refined petroleum naphtha which by its composition is suitable for use as a carburant in internal combustion engines."

The British definition of gasoline, as used for tax purposes, is: "Hydrocarbon oils or mixtures containing hydrocarbon oils or which oils or mixtures not less than 50 per cent by volume distills at a temperature not exceeding 185° C., or of which not less than 95 per cent by volume distills at a temperature not exceeding 240° C., or which gives off an inflammable vapor at a temperature of less than 22.8° C., when tested in the manner prescribed by the acts relating to petroleum."

The commercial grades are defined by the United States Bureau of Mines in Technical Paper 323B. Sold for 15 cents by the Superintendent of Documents, Washington, D. C.

ORIGIN OF PETROLEUM THEORIES OUTLINED

Would you kindly give the essential points covering the theories for the formation of petroleum from metallic and organic substances?—H. F. E.

The origin of petroleum may be explained in several ways. An article from Technik u. Industrie was reviewed in Petroleum Times, June 25, 1927, page 1,186. The author accepts the organic theory, favoring animal remains as the source of petroleum. The extract following is from this source.

The objection to the theory of animal origin on the ground that the material accumulations have not been sufficient for the production of the large quantities of oil found in certain oil pools is probably quite weak. The fossil remains or hardened skeletons of small marine organisms are in some places so abundant, and form such thick layers in the earth's strata, that this objection seems to lack force. Granted that the vegetable accumulations are vastly more abundant and general, yet this greater abundance does not necessarily strengthen the case for a vegetable origin for petroleum. The fact that petroleum pools are usually found where lagoons or deltas of ancient rivers existed where vegetable matter in vast quantities was brought down by flooded rivers, is also not conclusive evidence of the vegetable origin of petroleum, because it is just in such areas that marine animal life would concentrate, because the material carried by the rivers would supply its food. Hence, while the evidence of a vegetable origin for petroleum is abundant and highly convincing, it by no means shuts out the possibility of an animal origin for petroleum.

The writer in Technik u. Industrie dismisses the emanation theory of Mendeleef and the scientists who accepted it as a physical absurdity. The assumption in this theory was that at about 125 miles depth in the earth's crust there existed a zone of metallic carbides, mainly iron carbide, at a temperature of about 3,600° F., and that water finding its way downward would, on reaching this zone, become converted into its constituent gases, oxygen and hydrogen. The latter would then combine with the carbon of the metallic carbide to form hydrocarbon vapors and the oxygen would combine with the iron to form oxide. The hydrocarbon vapors would escape upward and condense in a relatively cold and porous zone nearer the surface of the earth, thus forming the petroleum occurrences as we know them. The possibility of forming hydrocarbons by the action of water on iron and some other metallic carbides can be demonstrated in the laboratory, and thus it seemed at first to be a plausible explanation for petroleum production.

But von Hofer and Engler showed that water could never exist as such at the temperature named. Whatever the pressure upon it, its critical temperature is about 680° F., when it becomes steam, and thus it would not reach the assumed metallic carbide zone in depth. This objection of von Hofer and Engler cannot be explained away, and thus it seems to effectually destroy the Mendeleef theory.

In any case, the organic theory of petroleum origin has become very generally accepted in recent years, but a controversy still endures as to whether the organic mother-substance was vegetable or animal matter. Von Hofer regarded marine animal remains, such as those of fish and mussels, as the raw material of petroleum, and attributes the oils of the eastern fields of the United States to the accumulation of animal remains of many kinds, including invertebrata, as well as many kinds of fish and other marine animal remains. These animal remains became transformed into petroleum by a slow distillation under the influence of the earth's heat and in the presence of a suitable pressure. This formation of petroleum, according to von Hofer, has taken place in all stages of the world's history since animal life existed on it, and is still going on.

With regard to the present formation of petroleum, the following instances are given: At the mouth of the Don River, in the Sea of Azov, where the remains of fish accumulate, being brought there by the sea currents and are covered by the alluvial matter brought down from inland in large quantities by the Don River. Other places where the formation of petroleum is said to be still going on are near the coast of the Red Sea, southwest of Sinai, off the coast of Portuguese East Africa. A subsequent elevation of these areas will make them exploitable oil fields.

OZOKERITE FROM RUSSIA AND ITS USE

Could you give me any information covering the present production of ozokerite in Russia and what use is made of ozokerite?—W. T. A.

Ozokerite, according to a recent article in La Vie Economique des Soviets, was first exported from Russia in trial lots in 1925, but during 1928-29 a total of 130.7 tons was shipped, valued at 80,400 roubles, and for the first 10 months of the current fiscal year the quantity has been 280 tons. The quality has also been improved gradually and since 1928-29 it has been sold to standardized specifications and higher prices thereby obtained; for example, the standard grade of the Turkmenceroz trust now sells at $410 a ton, whereas the nonstandardized Ouzbekgostorg product only fetches $220. Until recently the grades sold had melting points of 158° to 162° F., 165° to 169° F., and 172° to 176° F., but such specifications did not cater for the lower melting point products of Tcheleken, so that during the current year 147° to 151° F., and 153° to 156° F. products have been put on the market, and it has been found that the sales of these lower melting products amount to 15 per cent of the whole.

The Russian deposits of ozokerite are concentrated in the Tcheleken Islands. It is of excellent quality and the deposit is reported to be very large. While the development is now conducted in a primitive manner it is thought that modern solvent methods when installed will increase the output at lower costs.

Ozokerite is used chiefly in the manufacture of ceresin—a high melting point wax of special properties—of which it yields anything from 55 to 90 per cent by weight. Ceresin—really refined ozokerite—is used for the insulation of cables, the impregnation of wood, and as a component of blacking compositions and greases; it is also used in the manufacture of artificial beehive cells, floor-wax, and for impregnating wine and beer barrels, high grade candles, and wax bottles. It is normally used in admixture with a less costly material.

In foreign markets the sale of ozokerite has to compete with substitutes, which have come into more general use since the failure of supplies from Borislaw, but for the production of ceresin, however, ozokerite cannot be replaced, so that a large export market is assured.

MANUFACTURE OF GAS FROM OIL

I would like to make a study of the manufacture of gas from oil and would appreciate information and references on the subject?—R. G. T.

The manufacture of gas from oil is accomplished on the same principles that are used in the preparation of water gas, coal gas, etc. There must be decomposition of the materials containing carbon and hydrogen and the necessary purification of the gas.

The essential parts of the apparatus include a generator, carburetor, superheater, and washing unit, or, as it is commonly called, a wash-box. The generator is charged with the fuel, coal for example, and brought to high temperature, incandescence, by an air blast. The gaseous products pass out at the top into the carburetor. This may be a unit filled with a checker of brick or tile over which oil is sprayed. From the bottom of the carburetor the products flow up through the superheater and out to the stack. Air is admitted at the base of the superheater as needed. From the superheater the gas goes to the wash-box, then to storage.

Some further details are quoted from Rogers, Industrial Chemistry, 556.

"When the carburetor and superheater have been brought to the desired temperature the air blast, the superheater, carburetor, and generator are cut off in the order named. The stack valve is closed and the steam is admitted through a meter beneath the gate of the generator. When the steam passes up through the hot fuel it is partially decomposed, forming blue water gas in accordance with the reaction $C+H_2O=CO+H_2$ and the general water gas reaction $CO+H_2O=CO_2+H_2$.

"The hot water gas passes into the carburetor where it meets the enriching oil, which is passed through a meter under pressure and then through a spray in the top of the carburetor. The sensible heat of the water gas and the high temperature in the surface of the checker bricks vaporize the oil. The mixture of water gas and oil vapors then passes down through the carburetor, where the vaporization is completed, a considerable portion of the vapors decomposed and to some extent polymerized into fixed gases. Passing from the base of the carburetor up through the superheater, the temperature of the checker brick of which is very carefully regulated, the decomposition of the oil vapors is carried to the most advantageous point, and the resulting mixture is composed of fixed gases, some condensable vapors and a small quantity of complex hydrocarbons, known as water gas tar.

"These pass out through the connection to the stack valve, through the dip-pipe into the wash-box, which acts as a hydraulic seal and prevents both the escape of the products of combustion during the blasting period and the return of the illuminating gases. In contact with the water in the wash-box, the temperature of the gas is reduced from 1,200° or 1,300° F. to about 190° by the vaporization of the water, and some of the tar is deposited. The gases pass out of the wash-box through the scrubbing and condensing apparatus to the relief holder."

There are numerous books and articles on the subject of gas manufacture; these may be mentioned: Gas and Oil Engines and Gas Producers, L. S. Marks, American Technical Society, Chicago, 1916; Carbureting Water Gas, J. V. Richards; Reports of the American Gas Association; New Methods in Gas Manufacture, Gas Journal (London) 192, 36, 7, 1930; Heavy Fuel in the Manufacture of Carbureted Water Gas, P. T. Dashiell, American Gas Association, 1930.

There may be many ways of Saying it but, after all, there's only one right way of Meaning it; and so when we say that we wish you a good, old-fashioned Merry Christmas, you know that we mean it in the good, old-fashioned way!

Halliburton Oil Well Cementing Co.
Duncan, Okla.

Personal Paragraphs About Oil Men

W. E. Impey, of the Illinois Malleable Iron Company, Chicago, Ill., was a recent visitor in Tulsa.

* * *

Mills Bennett, president of the Mills Bennett Production Company, has been in New York City on business.

* * *

Wirt Franklin, president of the Wirt Franklin Petroleum Corporation, of Ardmore, Okla., has left for Washington, D. C.

* * *

Lee J. Robinson, public relations director of the Indian Territory Illuminating Company, has moved his office from Oklahoma City to Bartlesville, Okla.

* * *

A daughter was born December 10 to Mr. and Mrs. Russell S. Morris. Mr. Morris is connected with the H. F. Wilcox Oil & Gas Company, Tulsa.

* * *

W. E. Jack, lubricating engineer, formerly of the Skelly Oil Company sales department, is now engaged in a similar capacity with the Continental Oil Company.

* * *

H. E. Marsh, manager of the Texas division of the Amerada Petroleum Corporation, Fort Worth, Tex., spent a two weeks' vacation at his old home in Marshville, N. C.

* * *

Roy Bettis, Houston, Tex., representative of Patterson-Ballagh Corporation, spent a day in Tulsa where he met and conferred with J. C. Ballagh who is returning to California from an extensive European trip.

* * *

Jacob France, president of Mid-Continent Petroleum Corporation of Baltimore, Md., is a visitor in Tulsa. It is Mr. France's first visit since his recent tour in Europe, where he visited England, France and Germany.

* * *

Marion D. Smith, former assistant district manager of the Continental Supply Company, Fort Worth, Tex., has been transferred to Casper, Wyo., where he will be district manager. Ross A. Brewer has been transferred from Shreveport, La., to take the place made vacant at Fort Worth by the promotion of Mr. Smith.

* * *

J. C. Ballagh spent a day in Tulsa on his return from a two months' trip to Europe where he investigated oil conditions in foreign fields. Mr. Ballagh found that overproduction of petroleum products is worldwide with the possible exception of India where a local market is able to consume the maximum production in that country.

* * *

The West Texas Geological Society, with headquarters at San Angelo, will elect officers on December 13. R. E. Rettger, district geologist for the Sun Oil Company at San Angelo, is now president. John Emery Adams, paleontologist for the California Company at Midland, will read a paper on "Anhydrite Inclusions in the Lime Section of the Permian Basin."

* * *

Willard H. Dow has been appointed president and general manager of the Dow Chemical Company, Midland, Mich., to succeed the late Dr. Herbert H. Dow. The new president of the company has been a member of the board of directors and for the last four years has acted as assistant general manager. For the last three years he has been also assistant treasurer.

* * *

A party of officials of the Gulf Companies, including F. A. Leovy, president of the Gulf Production Company and the Gulf Pipe Line Company, Pittsburgh, Pa.; H. A. Gibney, general auditor; C. R. Minor, vice president of the Gulf Refining Company, Shreveport, La.; and Henry McGraw, vice president of the Gypsy Oil Company, Tulsa, spent some time at the Houston, Tex., offices of the company on their tour of the companies' holdings. While in Houston they were the guests of Underwood Nazro, vice president, at Houston.

F. A. Dunigan, Dunigan Tool & Supply Company, Breckenridge, Tex., was a recent visitor to Tulsa.

* * *

A. J. Hoover, of the Fox Rig & Lumber Company, and F. R. Smith, of the Gypsy Oil Company, spent several days in the western Kansas fields.

* * *

C. W. Moore has been appointed credit manager of the Wickwire Spencer Sales Corporation over the Tulsa district. He succeeds Dean Rollans who has recently been transferred from Tulsa to New York City and promoted to credit manager in the general offices.

Men of the Industry

W. E. Haggard

W. E. Haggard, superintendent of the Continental Oil Company's land division, entered the oil business in 1916, when he got a job with the Empire Oil & Refining Company in Bartlesville, Okla. He worked in the statistical and purchasing departments. In July, 1919, he was employed as purchasing agent for the Emerald Oil Company, with offices in Winfield, Kans. Here he gained experience in the land and production departments. In the spring of 1924 he joined the Marland Oil Company of Colorado, first as a lease man and six months later as purchasing agent. The Marland Oil Company of Colorado was at that time a production subsidiary of the Marland Oil Company of Delaware. In January, 1927, Mr. Haggard was made assistant superintendent of the land department of the Colorado subsidiary, with offices in Denver. Six months later he was made superintendent.

When the various Marland production subsidiaries were consolidated in the spring of 1928 and central offices were set up in Ponca City, Okla., Mr. Haggard was placed in charge of the land department. Since that time the personnel of the department, now called a division, has been increased. Besides an office force of 20 there are 10 lease men and scouts in the Oklahoma-Kansas production division, 10 in the Texas-New Mexico division and 2 in the Rocky Mountain division.

Mr. Haggard was born in Bloomington, Ill., February 20, 1893. The family moved to Oklahoma City, Okla., where the boy graduated from high school in 1913. He immediately got a job in the plant accountant's office of the Southwestern Bell Telephone Company. He intended to work for a year or two and then go to college. Instead he married, remaining with the telephone company till 1916, when he entered the service of the Empire Oil & Refining Company.

A. J. Dolliver, of the American Chain Company, Chicago, was a Tulsa visitor recently.

* * *

C. B. Parrish, of the Emsco Derrick & Equipment Company, is convalescing from an attack of appendicitis.

* * *

R. V. Logan, president of the Logan Map Company, Fort Worth, Tex., has been visiting New Mexico.

* * *

Edwin P. Human, of the sales force of the Imperial Belting Company, Chicago, has been visiting the Mid-Continent.

* * *

Frank D. Williams, recently retired president of the National Transit Pump & Machine Company, Oil City, Pa., spent several days visiting in Houston and San Antonio, Tex.

* * *

G. C. Potter, former chief geologist of the McMan Oil & Gas Company, now independent consulting geologist at Tulsa, is another hunter who bagged a Texas buck during this hunting season in Texas.

* * *

J. F. Corcoran, special oil field representative of the Trimont Manufacturing Company, was in Tulsa for a few days following a trip through Texas. He will spend the holidays with his family and at the factory, Boston, Mass.

* * *

H. N. Blakeslee, of the Safety Council of the American Petroleum Institute, Chicago, is moving to Dallas, Tex., where he will establish national headquarters and carry on his work as safety engineer for all divisions of the Institute.

* * *

O. E. McClatchey, purchasing agent, and Charles Jacobson, general superintendent, Barnsdall Corporation, Tulsa, and C. M. Murray of the Murray Tool & Supply Company, Cleveland, Okla., have returned from hunting ducks in southern Arkansas, making the trip in Mr. Murray's plane.

* * *

Guy R. Nicholson, in the land department of the Empire Oil & Refining Company at Wichita, Kans., and Anne Patterson, of Chicago, were married at Russell, Kans., November 18. Mr. Nicholson was formerly chief scout with headquarters at Bartlesville, Okla.

* * *

Francis Suggett, A. R. McElreath, independent operators at Fort Worth, Tex.; H. E. Marsh, Amerada Petroleum Corporation, and George Snyder head of the Midland Production Company, Fort Worth, have returned from a successful deer hunt in Mason County, Southwest Texas.

* * *

C. P. Clayton, who as general manager of the Old Producers Oil Company, was a figure in the development of the original Caddo Parish Field in 1910-12, and who has since retired from executive activities in the industry to a Kansas stock farm, was a visitor in Shreveport, La., recently.

* * *

W. T. Adams, chief scout; Mr. Julian, F. E. Chalk, chief engineer, of the Gulf Refining Company's Shreveport, La., headquarters; W. G. Booth, in charge of the company's El Dorado, Ark., offices; T. A. Petty and Drew Colgin, also of the El Dorado offices; A. D. Leeton, A. H. Petty, J. F. Fowler, W. C. Conger and M. E. Zach, formed a hunting party which recently returned from an island in the Mississippi River in southeastern Arkansas.

* * *

Kansas Geological Society elected new officers for 1931 at the regular meeting held in Wichita December 6. The new president is Walter W. Larsh, with the Dixie Oil Company; vice president, E. A. Wyman, with the Amerada Petroleum Corporation; secretary-treasurer, Paul Whitney, with the Mid-Continent Petroleum Corporation. In addition to these officers, E. P. Philbrick, with the Magnolia Petroleum Company, was elected to the board of directors.

Use of Superheated Steam in Drilling

Engineer Points Out How Improvement in Design of Power Equipment Makes Possible Reduction in Operating Costs

By V. Weaver Smith
Sales Engineer, The Superheater Co.*

The advent of deep drilling for oil has greatly increased the size of the equipment necessary for drilling. The cost of equipment has been mounting very much faster than the return from the wells. Furthermore, the transportation of this heavy equipment is becoming a serious problem. These factors have turned the oil industry to the engineer for assistance in solving the problem of reducing the cost of drilling wells.

Up until a short time ago, as equipment failed or did not seem powerful enough, the tendency was to build it heavier or build it larger. Very little attempt was made to build the equipment more efficient and make it capable of doing more work without increasing its size and weight.

As an example of this, the single engine was replaced by a twin engine and more recently the size of the cylinder was increased from 10″x10″ to 11″x11″ and finally to 12″x12″. The size of fluid pumps increased from 10″x4″x12″ to 15″x7¾″x20″. In very few instances has any attempt been made to reduce the power required or the weight per unit of work produced. Hence the boiler plant has increased to meet the larger steam demand from two 73-horsepower, 175-pound boilers to four 125-horsepower, 350-pound boilers necessary to operate a rig.

This condition has become so serious that in spite of the fact that the driller pays nothing for his fuel, he is now able to buy power in some cases from public utilities, who pay for this same fuel, more economically than he can produce it. This condition has been brought about because little attention has been paid to decreasing the initial cost and increasing the life of the equipment. The utility has overcome the fuel cost by more efficient design and operation of the power-plant equipment.

Reducing Drilling Costs

The producing industry is in an excellent position to reduce the cost of drilling wells by taking advantage of the improvements that utilities and other industries have made in design of power equipment. By so doing they will recover the advantage of low or no fuel cost and thereby reduce the cost of drilling.

Steam is the ideal power medium for drilling for many reasons. It gives more flexibility to the ever-changing demands for power over a day's operation. Fuel is invariably available at the location and water is required for drilling the well. Hence, with all the raw materials necessary for supplying power on the location, the cost of transportation of any other power medium should be overcome very readily by the efficient use of the power medium. Electric power is not available at many locations, particularly in new pools where drilling is often competitive. By standardizing on equipment of one power medium that is usable under all conditions, and developing its efficiency to the highest degree, the initial investment in equipment is reduced and the problem of replacements is greatly simplified.

The principal reason for the slow introduction of efficiency into steam power-plant equipment for drilling has been two fold: (1) Most refinements in power-plant equipment have been looked upon as fuel savers and the driller has no fuel cost; (2) until recently the size of the power plant was too small for most refinements to justify their cost. With the heavy power demands of modern drilling and the rapid strides made in power-plant engineering, this condition is now entirely different.

Furthermore, in analyzing the advantages and disadvantages of any piece of equipment it is often necessary to go into detail. For instance, while it is commonly supposed that the reason for using superheaters on locomotives is because of the large saving in fuel and water, it will probably be found on careful analysis that the increase in the capacity of the locomotive and other factors would alone more than justify the investment. And so in considering the use of superheaters for oil-well drilling, a careful analysis of the whole problem must be made.

Before considering the advantages offered by superheated steam it may be well to consider what superheated steam is and how steam is superheated.

Superheated Steam

Steam is superheated when it has been heated above the temperature corresponding to the saturation temperature. The temperature difference between superheated steam and saturated steam at the same pressure is known as the degree of superheat.

Steam that is superheated contains no moisture and cannot condense until its temperature has been lowered to that of saturated steam at the same pressure.

Superheated steam is a more efficient medium than saturated steam for transforming heat energy ....o mechanical energy and, therefore, fuel into power.

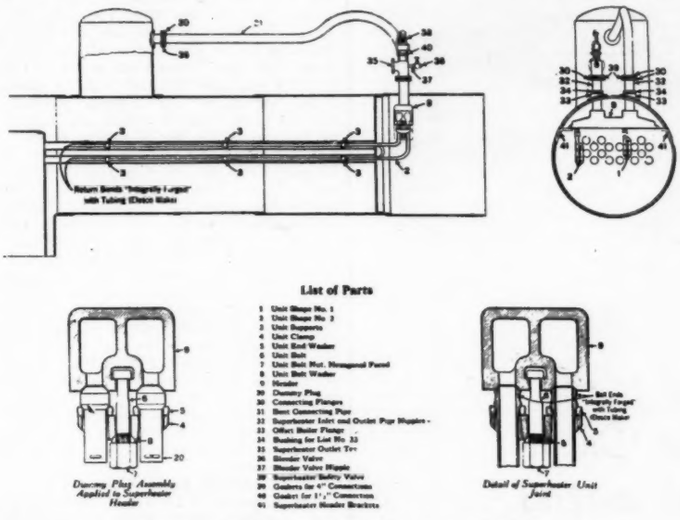


Figure 1—Superheater application to oil country boilers.

How Steam Is Superheated

Steam is superheated by adding heat to it after the steam is removed from contact with water. Usually the steam is passed through a vessel located in the path of the furnace gases. Sometimes separate sources of heat are employed. Steam may be superheated or reheated in reheaters or steam resuperheaters while passing from the high to the low-pressure stages of large turbines, where the heating agent is live steam. Superheaters with separate furnaces, known as separately fired or portable superheaters, sometimes are employed.

Steam can be superheated by throttling. This method, however, is a special instance and is not ordinarily employed, since any degree of obtained superheat is at the expense of reduced pressure.

A Steam Superheater

A steam superheater is an apparatus to increase the temperature of steam without increasing its pressure. It is used generally for raising the temperature of saturated steam direct from a steam boiler. It consists of a system of tubular units or elements with the steam flowing inside and hot gases outside. One end of each tube or unit is connected to a distributor or saturated-steam header, the other end to a collector or superheated-steam header.

A superheater as shown in Figure 1 for oil-country boilers consists primarily of:

1. A special cast-steel header comprising two compartments, one acting as the distributor for the saturated steam coming from the boiler, and the other for the collection of the steam after it has been superheated and from which the steam is carried to the main steam line.

2. Detachable units of heavy-gauge, seamless-drawn, steel tubing, which are formed by bonding together two or more lengths of tubing by forged return bends. These units are connected to the header by means of clamped metal-to-metal ball joints.

3. Connecting pipe between the boiler nozzle and the saturated steam inlet, safety valve, and bleeder valve.

Effect of Superheated Steam

A careful study of drilling operations was made to determine if superheated steam offered any advantages over saturated steam. This investigation indicated that the use of superheated steam would offer the following advantages:

1. By reducing the steam consumption of the drilling engine and the fluid pump.

2. By reducing radiation losses in pipe lines from boilers to the drilling rig.

3. By reducing the steam pressure of the boilers for required steam pressure at the engine and pump.

4. By increasing the pressure of the fluid pumped to the well.

(Continued on Page 156)

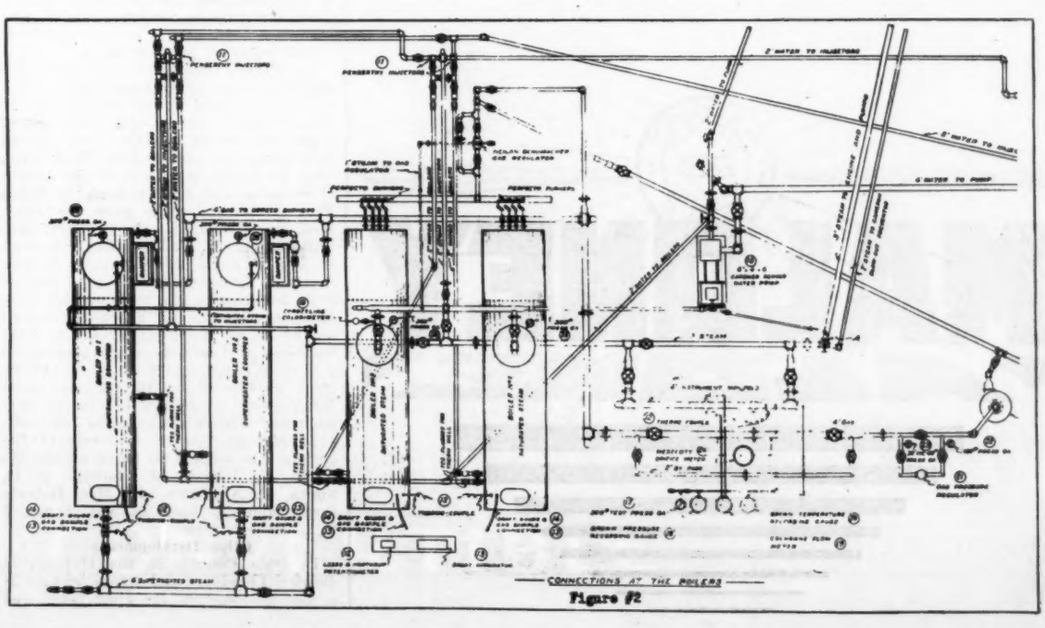


Figure #2

*Presented at the National Petroleum meeting, Tulsa, of The American Society of Mechanical Engineers.

To our good friends throughout the Oil Industry, we all extend best wishes for a Merry Christmas and a Happy New Year.

MALONEY TANK MFG. COMPANY
Tulsa, Oklahoma

MALONEY PATENTED BOLTED COPPER-STEEL TANKS
MALONEY 'ALONE'

KENTUCKY FIELDS

(Continued from Page 74)

Lectra Pool, 7 miles from the Legrande Pool, but in Barren County, and is a little bit larger than the Coral Hill or Oil City Pool in Barren County. All three of these pools in that neighborhood came in big and within 90 days were down to very small production, and there is no reason to think that the new Hart County Pool will be different. The only difference is that the other pools were developed sanely, and this Legrande Pool, due to so many drilling rigs being idle, has been developed wildly, bringing in three or four wells a day for oil, gas and dry holes.

Too Much Oil

The situation in Kentucky is that there is too much oil in western Kentucky now. The Illinois Pipe Line Co. has obtained the co-operation of producers around Owensboro in retarding oil drilling, and will not connect to new leases coming in. If the offer made by The Texas Company to purchase the Indian Refining Co. is accepted it will probably mean that The Texas Company will run its own oil, and will not run as much Kentucky oil as the Indiana Refining Co. has been running, which will further curtail the market for Kentucky crude.

The leading producers in the new Hart County Field are now getting together, and it is understood they have agreed not to drill more than one well to a farm, and will ask the pipe line company not to take oil from any lease where more than one well is drilled on a farm. If this is done the condition will probably be greatly improved, but if the present program is carried out the field will be drilled up in another 60 days, and will probably fall off to nothing within six months or so. Also, if this flush crude is dumped on the market it will tend further to break the market for Kentucky crude. In spite of this crude being highly sulphurous it is nice quality crude, and is similar to Barren County or Allen County crude.

Recent Completions

The Legrande Pool lies in three counties, southern Hart County, northern Barren County and northwestern Metcalf County. Late wells in the Hart County end of the pool do not show the big flush production former ones did. The L. C. Young's No. 1 on the Legrande McGee farm, is said to show around 30 bbls, and Legrande Oil Co.'s Nos. 5 and 6 Buford Ross farm, around 40 bbls. initial each. Unknown parties report a dry hole on the H. A. Cook farm, about 2 miles southwest of the discovery well of the pool on the McKinney farm. A dry hole was drilled on the D. Nunn farm, a short distance east of the dry hole on the Cook farm. A dry hole is also reported on the B. Bunnell farm, near the hamlet of Rex and around 3 miles almost directly north of the McKinney discovery well, and another dry hole is reported on the Mrs. C. Smith farm, about a mile southwest of the duster on the Cook farm.

In Barren County a dry hole was drilled on the Luther Smith farm, about a mile southwest of the duster on the Mrs. C. Smith farm, and a mile west of a gas well on the H. Allen farm. A gas well was drilled on the John Shaw farm, close to a mile southeast of the hamlet of Seymour, also a gas well on the Rufus Ferguson farm, which joins the Shaw farm on the south. A gas well was drilled on the V. H. Edwards farm, nearly a mile south of Seymour. A mile south of Legrande and a mile east of Seymour are two gas wells on the Felix McKinney farm, and another gas well on the R. L. Wilcoxon farm, 1½ miles southeast of Legrande, while a small oil well with a reported flush of around 25 bbls. was found on the Roberts heirs farm, about one-half mile east of Seymour and 2 miles southwest of Legrande.

In Metcalf County, southeast of Legrande, gas wells were found on the W. Ervin, F. Johnson, J. Roberts, J. H. Smith, T. A. Ennis and Mrs. Roberts farms, and dry holes in Nos. 1 and 2 H. C. Roberts farm.

Other Developments

In Ohio County, in the Haynesville district, Lenninger and others brought in a nice gas well on the Huff farm, and Pointer and others a good gas well in No. 2 Henry Bickett farm.

In Warren County Shriver and others' No. 2 Earnest Phillips farm, southwest of Bowling Green, pumped 1 bbl. initial at 1,190 feet, and the Allen Oil & Gas Co.'s No. 5 A. C. Buttersworth 50 acres, south of Bowling Green, was dry in the shallow 510-foot sand.

Hancock County, in the Tri-County Field, is doing its bit in new work of late. The Olean Petroleum Co.'s No. 2 Crowe farm, in the Pellville Field, is credited with an initial of 20 bbls. from the Jett sand at 420 feet. James C. Ellis drilled in a fair gas well in No. 2 on the Hattie R. Mason 112 acres . Ohio-Osage Oil Co. struck a nice gas producer in No. 1 on the Wes Boler farm, having found 5 feet of gas pay. Henry K. Miller and others also struck a gas well above the average with 5 feet of gas sand on the Jack Falls farm, near Easton. Bailey and others drilled a gas well in No. 1 Poole farm, same county, and drilling No. 2 Fuqua farm.

In the Greenville Field, Muhlenberg County, the Greenville Oil Syndicate's test on the Hugh Lee farm, near the hamlet of Weir, southwest of Greenville, reported showing for 30 bbls.

Kentucky Pickups

It is reported that the Missouri-Kansas Pipe Line Co. is making a survey for an extension of the new gas line from Reynolds Station, in Ohio County east to the Bailey gas well on the Poole farm, in Hancock County, thence north to Easton, thence west to the Bates farm gas well recently completed in Hancock County, which was dry in the Jett sand, but a good gas well in the Barlow sand.

B. B. Rhodes, Tulsa, has returned to the Owensboro, Ky., field where he has been operating for some time, with the expectation of starting new development.

The Devonian Gas Co. is making an important deep test on the Fred Kinner, near the mouth of Big Blain Creek in Lawrence County, in the eastern part of Kentucky. The contractors on this well are Hurt & King. This well at last report had reached a depth of 2,399 feet and was shut down awaiting the arrival of some new equipment needed for the deep test. It was started as a shale test, but no gas in paying quantities being found in that formation the company decided to drill through the Corniferous lime, and if nothing is found there it may complete a test through the Clinton. At the present time the eastern part of Kentucky is attracting widespread attention, and is known as the best gas area east of the Mississippi River. Boyd County, as well as adjoining counties, are in line for a heavy drilling campaign for gas and oil as well. The productivity of the shale (Devonian) could be enormously increased by shooting its entire thickness instead of the gas showing streaks only.

Pipe Line Runs

Total runs made from wells served by the Illinois Pipe Line Co. in western Kentucky during November, 1930, were 205,132.93 bbls. Cumberland Pipe Line Co. runs from eastern Kentucky for November, 1930, were 157,587.04 bbls.

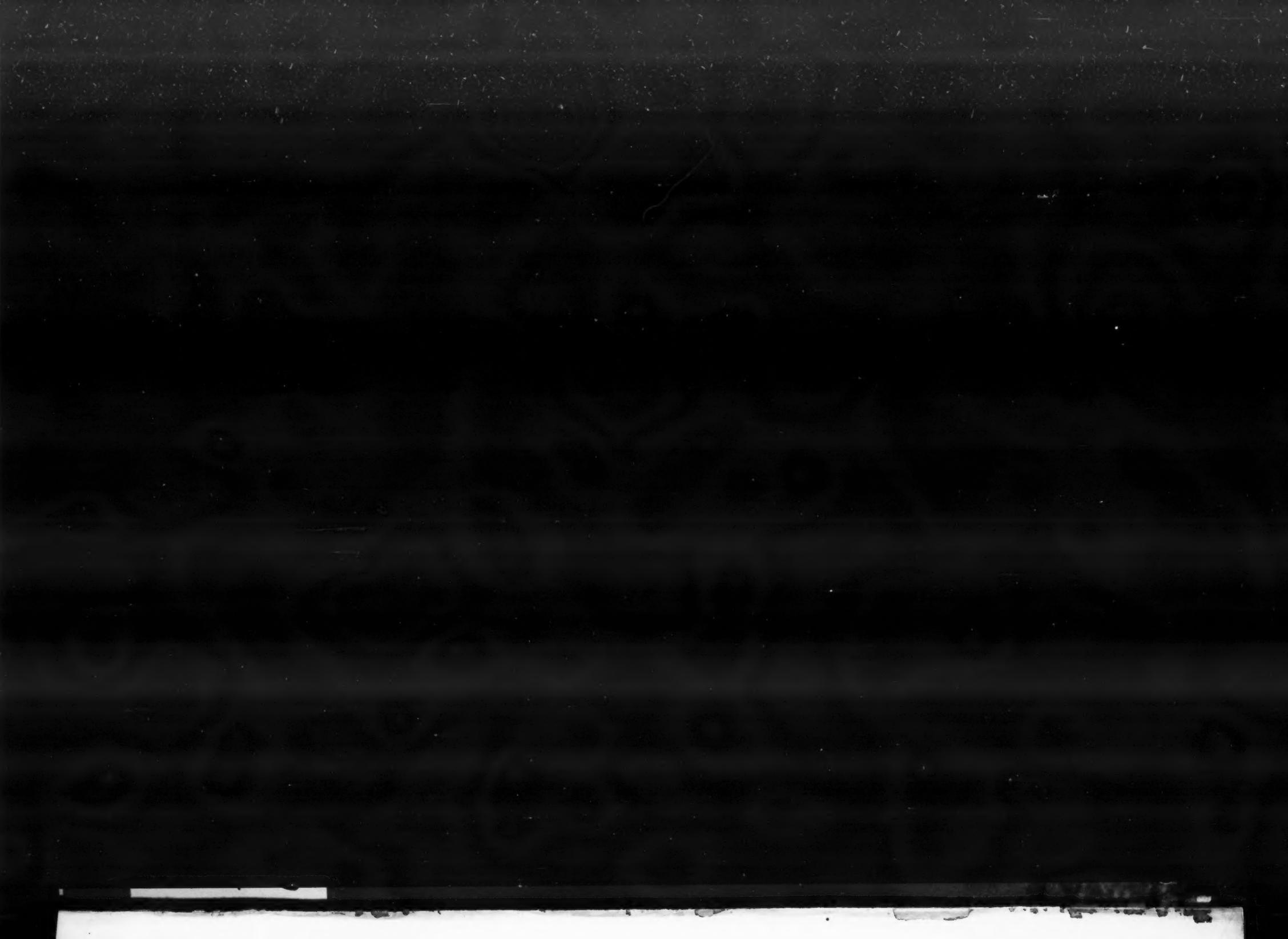
EASTERN FIELDS

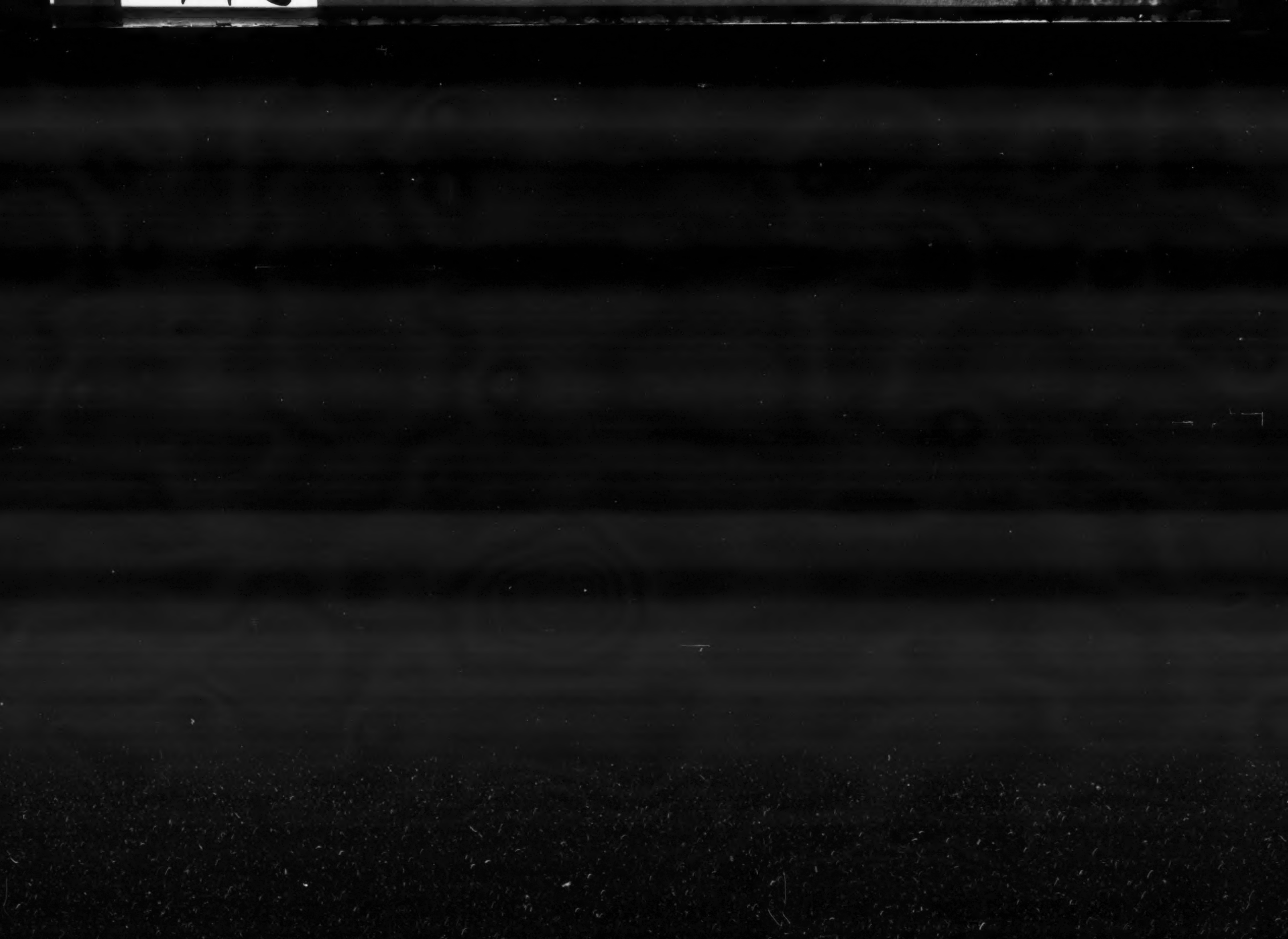
(Continued from Page 74)

the Cowden and Workman lease in Harvey district, and the United Fuel Gas Co. is fishing for the tools at 2,240 feet in No. 4,237 on the Central Trust Co. property, and has reached 2,538 feet in No. 4,236 on the same tract. The Red Jacket Oil & Gas Co. has completed rigging up for its No. 13 on the Red Jacket Consolidated Coal & Coke Co. farm in the same district.

SOUTHWEST PENNSYLVANIA

Little was accomplished in southwest Pennsylvania, there being but two completions which added nothing to production. In Greene Township the Philadelphia Natural Gas Co. completed No. 2,995 on the Samuel Fox farm, which was drilled deeper to a total depth of 3,500 feet and in the Fifth sand. It was dry in all formations. In Amwell Township, Washington County, J. Blaine, Wise & Co. completed a test on the A. J. Blaine farm at 3,037 feet and it was dry through all sands.





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World Registration 35,127,398 for Automobiles and Motorcycles, an Increase of 9 Per Cent Over Last Year

World registration of automobiles and motorcycles as of January 1, 1930, totaled 35,127,398, one vehicle for every 55 persons, as contrasted with world registration of 32,034,572 at the start of the previous year, an increase of 3,092,826, or 9 per cent, according to the automotive division of the Department of Commerce. "This vast cavalcade of progress operating on the streets and highways of the world," according to C. F. Baldwin, assistant chief of the automotive division of the department, "is larger by 155 per cent than it was in 1922 when world registrations totaled 12,530,416.

"At the beginning of 1930," writes Mr. Baldwin, "there was one automobile for every 55 persons in the world, assuming a world population of 1,949,000,000. A year before the ratio was 1 to 61. The latest census shows that there is one motor vehicle to every 4 5 inhabitants of the United States as compare with a ratio of 1 to 4.87 a year before. Outside the United States the ratio is 1 to every 216 persons, whereas at the beginning of 1929 it was 1 to 247.

"Once more Canada and New Zealand tied for second place in ratio of cars to population, each with 1 to every 8 persons. Australia again ranked third with a ratio of 1 to 10 and Monaco was fourth with 1 to every 16 inhabitants. Yeman, in southwestern Arabia, had only 1 car for every 104,166 persons; Ethiopia (Abyssinia), 1 for every 17,781; and Afghanistan, 1 for every 17,778. A study of the table given later reveals not only the relatively high motorization of some countries of the world, but also discloses the equally important fact that dozens of countries still have a relatively small proportion of motor vehicles to population. That fact suggests the existence of many markets of potential importance when the purchasing power of their inhabitants increases.

"The information disclosed in this annual world automotive survey becomes more important and significant each year for, in addition to its factual value, the census tells the story of the steady penetration and almost universal acceptance of the motor vehicle. From sub-Artic Iceland, with its more than 1,200 automobiles, to tropical Ethiopia, with its 568, and from east to west around the world, there has spread a highly organized distribution system which transfers the vehicle from the factory to the owner, whether he be in London or Paris or in a native town in Africa or the Orient. World motorization is no longer a prophecy for the future but a reality of the present. The doctrine of motor transportation has found acceptance in Afghanistan, the Congo, Madagascar, Oman, and Tongo, as well as in larger and more highly developed countries.

"This latest census, for example, shows increased registrations of automobiles in such regions as east, west and south Africa; China, Persia, Syria and Siam, as well as in many smaller countries which, until recently, presented few opportunities for motor sales. Those countries, now in the process of economic development and transition, are offering and will continue to offer opportunities of real importance to American manufacturers of automotive products. They have learned the uses of the automobile and their own need of motor transport."

The latest census of the department shows that registrations of all types of automobiles in continental United States totaled 26,653,450 on January 1, this year. This was more than triple the number of automobiles registered in all foreign and noncontiguous countries. Registrations in the United States at the start of the year accounted for 78 per cent of world registrations of passenger cars and 62 per cent of all commercial

(Continued on Next Page)

WORLD CENSUS OF MOTOR VEHICLES ON JANUARY 1, 1930 COMPLETED JUNE 15, 1930

Total World Registration January 1, 1927, 1928, 1929, 1930

County—	Passenger cars	Buses	Trucks	Total automobiles	Motorcycles
1927	23,518,928	194,574	3,936,965	27,650,267	1,674,720
1928	25,168,940	204,382	4,314,177	29,687,499	1,944,303
1929	27,011,602	313,903	4,709,067	32,034,572	2,264,298
1930	29,552,113	300,220	5,275,065	35,127,398	2,623,479

County—	Passenger cars	Buses	Trucks	Total automobiles	Motorcycles
Aden	542	78	46	666	46
Afghanistan	338	.....	112	450	.....
Alaska	1,731	.....	769	2,500	.....
Albania	700	4	500	1,204	5
Algeria	37,500	1,300	6,300	45,100	2,650
Angola	950	.....	1,050	2,000	1,500
Antigua, Presidency of	188	3	22	213	17
Argentina	296,224	2,600	65,913	364,737	2,007
Australia	461,291	2,238	117,781	581,310	90,114
Austria	19,613	2,500	12,470	34,583	44,059
Azores	469	35	30	534	38
Bahamas	916	5	306	1,227	15
Bahrein Islands	300	.....	20	320	.....
Barbados	1,300	135	180	1,615	113
Belgian Congo	2,400	.....	2,450	4,850	1,500
Belgium	92,000	1,150	46,500	139,650	43,000
Bermuda	.....	.....	10	10	.....
Bolivia	1,150	54	980	2,184	149
Brazil	128,000	1,440	64,560	194,000	2,500
British East Africa	9,487	.....	5,737	15,224	4,772
British Honduras	165	.....	42	207	.....
British South Africa:					
Nyasaland	670	25	480	1,175	600
Rhodesia, North	700	15	300	1,015	450
Rhodesia, South	8,600	150	1,370	10,120	4,000
British Southwest Africa	2,770	10	840	3,620	120
British West Africa:					
Gambia	84	4	164	252	36
Gold Coast	1,943	9	4,833	6,785	697
Nigeria	2,774	1,647	1,931	6,352	2,100
Sierra Leone	420	10	310	740	310
Bulgaria	2,619	841	241	3,701	471
Canada	1,018,967	1,768	147,453	1,168,188	8,804
Canary Islands	3,792	280	1,718	5,790	.....
Ceylon	14,470	2,694	2,818	19,982	3,423
Chile	22,649	1,674	8,673	32,996	372
China (exc. Hongkong)	22,912	6,410	6,167	35,489	2,419
Chosen	992	1,729	780	3,501	725
Colombia	10,000	.....	6,000	16,000	.....
Cook Islands	58	.....	48	106	7
Costa Rica	1,651	150	480	2,281	125
Cuba	33,577	1,826	14,703	50,106	476
Cyprus	*1,900	.....	.....	1,900	358
Czechoslovakia	42,690	1,530	14,180	58,400	29,580
Danzig	1,369	48	730	2,147	1,035
Denmark	70,500	1,125	29,000	100,625	29,000
Dominica	36	3	6	45	14
Dominican Republic	2,810	61	982	3,853	65
Ecuador	1,069	89	559	1,717	19
Egypt	23,189	3,291	1,195	27,675	3,203
Eritrea	193	30	123	346	53
Estonia	1,755	170	870	2,795	480
Ethiopia	502	.....	66	568	39
Faroe Islands	15	12	25	52	.....
Fiji Islands	870	78	193	1,141	173
Finland	22,462	1,233	9,445	33,140	4,760
France	930,160	15,000	351,007	1,296,167	405,513
French Equatorial Africa	344	.....	566	910	151
French Indo-China	15,011	2,149	1,247	15,407	2,199
French West Africa	2,897	2	4,139	7,038	.....
Germany	475,000	11,500	156,000	642,500	550,000
Gibraltar	481	44	88	613	46
Greece	12,500	1,100	4,250	17,850	600
Grenada	308	49	40	397	60
Guadeloupe	1,189	132	120	1,441	164
Guatemala	2,262	141	693	3,097	210
Guam	190	10	179	379	.....
Guiana, British	1,188	90	132	1,410	296
Guiana, Dutch	170	.....	25	195	90
Guiana, French	65	.....	35	100	10
Haiti	2,245	253	499	2,996	37
Hawaii	35,254	224	9,566	45,044	237
Hejaz	287	($)	666	953	2
Honduras	675	40	375	1,090	40
Hongkong	1,696	162	498	2,356	460
Hungary	13,293	690	5,069	19,052	10,365
Iceland	550	40	650	1,240	25
India	106,544	19,555	27,009	153,111	15,829
Iraq	3,266	57	1,237	4,560	199
Irish Free State	29,435	705	7,264	37,404	7,591
Italy	180,963	8,015	52,485	241,463	80,622
Jamaica	6,271	115	2,186	8,572	679
Japan	54,038	9,160	26,184	89,382	22,922
Latvia	1,674	274	1,021	2,969	1,174
Liberia	*300	.....	.....	300	.....
Libya	3,464	.....	1,878	5,342	.....
Lithuania	1,254	270	405	1,929	950
Luxemburg	6,021	167	2,419	8,607	2,018
Madagascar	2,046	($)	785	2,831	1,347
Madeira	656	110	70	830	20
Malaya, British	29,900	2,000	5,600	37,500	6,000
Maltese Islands	1,364	385	230	1,979	353
Martinique	1,530	18	461	2,009	175
Mauritius	1,975	120	298	2,393	136
Mexico	55,000	4,500	14,800	74,300	550
Monaco	1,449	60	91	1,600	200
Morocco, French	11,216	.....	4,639	15,955	1,200
Morocco, International Zone	751	48	392	1,191	86
Morocco, Spanish Zone	872	($)	669	1,541	44
Montserrat, Presidency of	38	4	6	48	2
Netherlands	62,230	3,500	34,807	100,537	31,000
Netherlands East Indies	62,846	7,257	11,425	81,528	13,333
Netherlands West Indies	1,221	16	765	2,002	125
New Caledonia	800	10	50	860	100
Newfoundland	2,141	9	360	2,510	93
New Hebrides	12	.....	50	62	2
New Zealand	143,841	1,238	28,733	173,812	37,355
Nicaragua	850	4	150	1,004	105
Norway	24,578	1,945	15,314	41,837	5,857
Oman	9	.....	1	10	1
Palestine	1,537	511	385	2,433	241
Panama and Canal Zone	5,578	459	367	6,404	.....
Papua (New Guinea)	71	.....	123	194	8
Paraguay	865	($)	772	1,637	8
Persia	4,310	372	3,645	8,327	345
Peru	8,660	505	5,450	14,615	350
Philippine Islands	23,341	2,889	8,413	34,643	.....
Poland	25,279	3,441	6,086	34,806	5,066
Porto Rico	9,294	430	2,767	12,491	105
Portugal	23,350	1,207	4,023	28,580	2,650
Portuguese East Africa	900	7	500	1,407	375
Reunion	807	7	135	949	97
Rumania	26,500	4,982	4,500	35,982	2,000
Russia	10,000	2,500	11,500	24,000	8,500
St. Christopher-Nevis	171	9	21	201	6
St. Lucia	109	3	34	146	22
St. Pierre and Miquelon	45	.....	30	75	3
Salvador, El	1,941	110	279	2,330	143
Samoa, American	21	7	24	52	.....
Samoa, western	227	11	127	365	9
Seychelles Islands	*14	.....	.....	14	30
Siam	4,300	.....	3,250	7,550	650
Society Islands	335	10	75	420	51
Solomon Islands	.....	.....	14	14	.....
Somaliland, British	22	30	.....	52	2
Somaliland, French	124	.....	28	152	34
Somaliland, Italian	102	.....	326	428	48
Spain	127,839	.....	44,438	172,277	11,518
Sudan, Anglo-Egyptian	1,441	($)	1,379	2,820	337
Sweden	99,144	2,511	35,172	136,827	54,846
Switzerland	57,400	600	13,916	71,916	45,248
Syria	7,040	($)	1,702	8,742	258
Taiwan	800	800	700	2,300	120
Tonga	125	6	77	208	15
Trinidad and Tobago	4,500	.....	1,400	5,900	200
Tunisia	12,141	100	1,500	13,741	1,200
Turkey	2,800	2,700	4,000	9,500	500
Union of South Africa	130,360	1,186	13,583	145,129	35,245
United Kingdom:					
Channel Islands	*5,326	.....	.....	5,326	1,456
England	904,661	41,482	296,696	1,242,839	640,724
Northern Ireland	17,810	756	6,098	24,664	8,052
Scotland	83,141	5,312	30,019	118,472	53,881
Wales	43,343	3,094	14,751	61,188	37,645
United States	†23,181,096	92,500	3,379,854	26,653,450	‡119,396
Uruguay	36,100	875	9,000	45,975	200
Venezuela	11,250	575	5,500	17,325	750
Virgin Islands	486	5	117	608	10
Yemen	20	4	.....	24	7
Yugoslavia	8,700	600	2,200	11,500	3,450
Total foreign countries and noncontiguous countries	6,371,017	207,720	1,895,211	8,473,948	2,504,083
Grand total	29,552,220	300,220	5,275,065	35,127,398	2,623,479

Key: *All types. †Includes 152,007 tax-exempt vehicles. ‡Includes 4,551 tax-exempt vehicles. §Trucks and buses.

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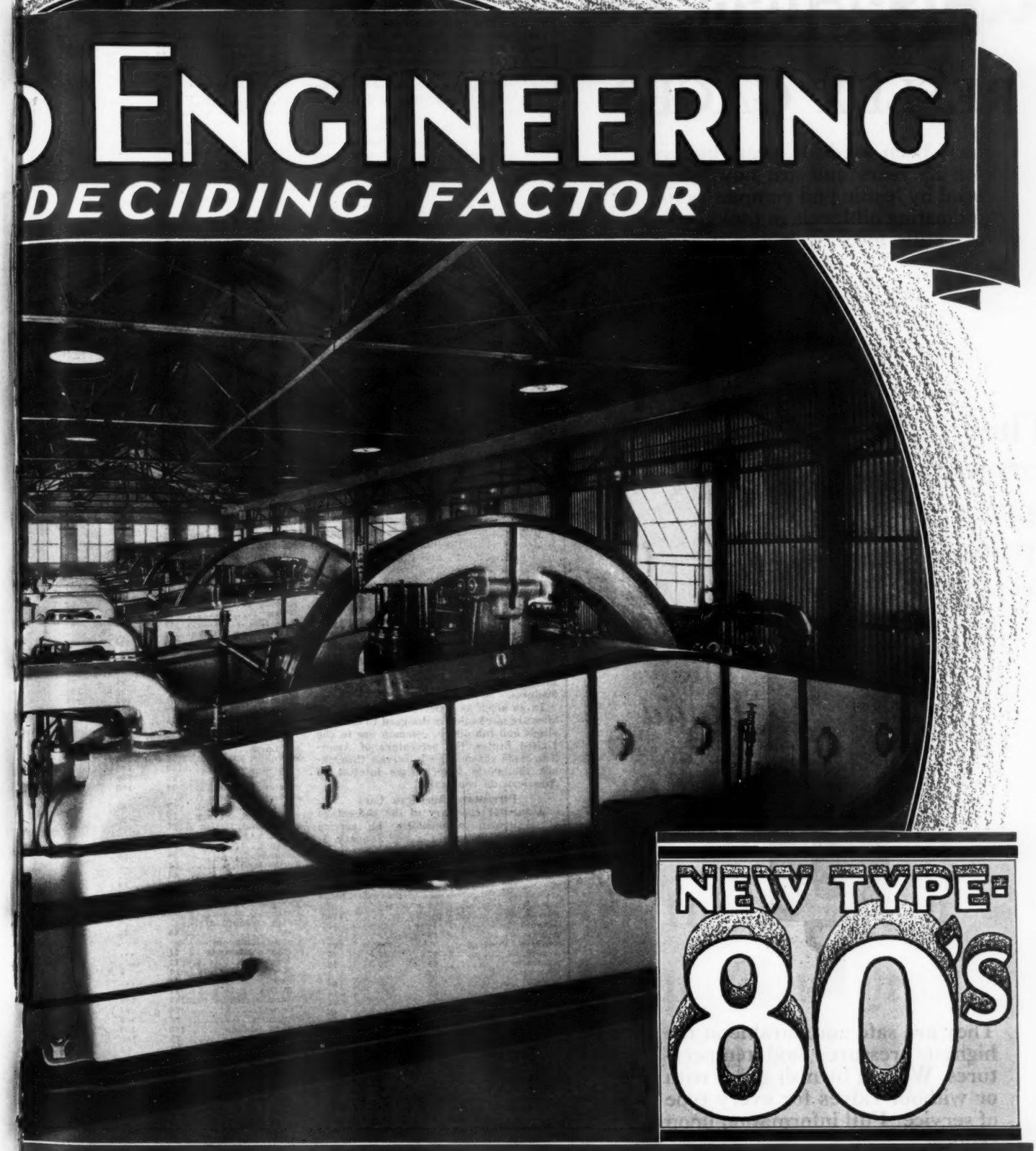

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vehicles. France ranked second in total registrations, with England and Canada following in the order named.

Registrations of commercial vehicles during the past year gained in all parts of the world at a relatively greater rate than passenger cars, the department's census reveals. An increase of 2,540,511, or 9.4 per cent, was shown in world registration of passenger cars during 1929, while combined registration of trucks and buses showed an increase of 552,315, or 10.9 per cent.

Trucks and Buses

"Although the passenger car outnumbers commercial vehicles in most countries," says the automotive report, "in others the trucks and buses are found in greater number. There these commercial vehicles are developing hitherto undeveloped regions and paving the way for greater numbers of passenger cars. The census reveals a preponderance of trucks and buses in Angola, Belgian Congo, the Gold Coast, Nigeria, Faroe Islands, French Equatorial Africa, French West Africa, Hejaz, Iceland, New Hebrides, Papua, Russia, American Samoa, Solomon Islands, Italian Somaliland, and Turkey. In all other countries the passenger car leads."

As of January 1, this year, American automobiles accounted for 88.4 per cent of total world registrations. For the entire world, the percentage of American made passenger cars registered was 89.9; of buses, 62.53 per cent; and of trucks, 81.59 per cent. Substantially 50 per cent of all automobiles of all types registered in foreign countries are of American manufacture.

While the steady growth in world automobile registration indicates a correspondingly greater world market for petroleum products, increasingly stiff competition from other producing and refining countries is tending to cut into American export totals, and thus the gains in American export sales are not keeping pace with the growing world use of automotive vehicles in many instances. Notwithstanding this development, however, American oil companies are gaining a share of this increasing business, and continued gains in world automobile use should tend to offset in some measure the growing competition of foreign gasolines, greases, and lub oils for this business.

In as much as American-made automobiles are mechanically designed to use gasolines and lub oils in common use in the United States, the percentage of American-made automobiles in service throughout the world is of prime interest to American oil companies.

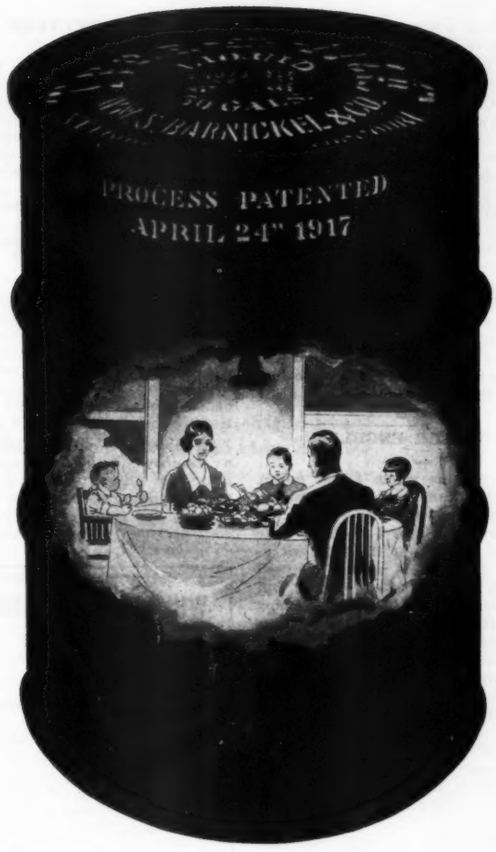
Percentage American Cars

A tabular summary of the percentage of American automobiles in service throughout the world as of January 1, 1930, compiled by the Department of Commerce, follows:

Country—	Passenger cars	Busses	Trucks
Aden	77	100	50
Alaska	100	...	100
Albania	79	50	60
Algeria	10	2	5
Antigua, Pres. of	95	100	100
Argentina	97	85	95
Australia	81	77	75
Austria	10	...	3
Azores	88	86	42
Bahamas	98	60	98
Bahrein Islands	95	...	95
Barbados	92	100	95
Belgium	45	60	60
Bermuda	...	...	99
Bolivia	98	95	98
Brazil	98	65	88
British East Africa	90	...	95
British Honduras	97	...	100
British South Africa:			
Nyasaland	80	90	90
Rhodesia, Northern	90	100	98
Rhodesia, Southern	92	80	90
British S. W. Africa	90	100	95
British West Africa:			
Gambia	39	50	73
Gold Coast	80	...	89
Nigeria	42	90	90
Sierra Leone	41	20	79
Bulgaria	44	64	24
Canada	100	100	100
Canary Islands	87	98	92
Ceylon	57	98	74
Chile	94	98	96
Chosen (Korea)	99	96	98
Colombia	100	...	100
Cook Islands	100	...	100
Costa Rica	99	100	99
Cuba	99	100	100
Cyprus	65	65	65
Czechoslovakia	9	15	20
Danzig	75	25	75
Denmark	90	70	92
Dominica	80	100	100
Dominican Republic	99	99	100
Ecuador	96	99	96
Egypt	53	83	82
Eritrea	46	65	58
Estonia	71	80	80
Ethiopia (Abyssinia)	57	...	46
Faroe Islands	93	100	100
Fiji Islands	89	93	93
Finland	93	93	95
France	10	...	7
French Equatorial Africa	35	...	50
French Indo-China	13	22	21
French West Africa	30	...	65
Germany	35	...	30
Gibraltar	57	94	80
Greece	85	30	70
Grenada, West Indies	100	100	100
Guadeloupe	60	50	25
Guam	100	100	100
Guatemala	97	100	97
Guiana, British	84	84	84
Guiana, Netherland (Surinam)	98	...	100
Haiti	99	100	90
Hawaii	100	...	100
Hejaz	97	100	...
Honduras	99	100	100
Hongkong	65	8	75
Hungary	33	...	46
Iceland	99	100	100
India	72	94	94
Iraq	89	91	73
Irish Free State	11	...	15
Jamaica	96	99	98
Japan	94	93	95
Latvia	86	86	84
Liberia	92	...	99
Libya	5	...	14
Lithuania	92	98	95
Luxemburg	55	5	35
Madagascar	8	...	19
Madeira Islands	75	90	70
Malaya, British	59	90	73
Maltese Islands	51	80	54
Martinique	66	22	85
Mauritius	50	90	95
Mexico	99	100	99
Monaco	6	...	...
Montserrat, Pres. of	98	100	100
Morocco, French	35	...	50
Morocco, International Zone	45	45	45
Morocco, Spanish	44	...	68
Mozambique (Portuguese E. Africa)	70	...	70
Netherlands	72	70	84
Netherland E. Indies	85	99	94
Netherland W. Indies	100	100	100
Newfoundland	98	100	96
New Caledonia	3	...	...
New Hebrides	8	...	20
New Zealand	78	60	81
Nicaragua	99	100	100
Norway	90	97	98
Oman	78	...	100
Palestine	89	98	85
Panama and Canal Zone	100	100	100
Papua, New Guinea	94	...	96
Paraguay	98	...	98
Persia	85	50	80
Peru	94	96	96
Philippine Islands	99	99	100
Porto Rico	100	100	100
Portugal	62	50	55
Rumania	75	94	75
St. Christopher and Nevis	96	100	100
St. Lucia	100	100	100
Salvador, El	96	100	85
Samoa, American	100	100	100
Samoa, Western	93	100	93
Society Islands	74	100	83
Solomon Islands	...	...	50
Somaliland, British	59	83	...
Somaliland, French	20	...	36
Somaliland, Italian	27	...	38
Sudan, Anglo-Egyptian	82	...	82
Sweden	90	60	80
Switzerland	33	...	25
Syria	88	...	83
Taiwan (Formosa)	98	99	99
Tonga	89	100	95
Tunisia	5	...	10
Turkey	75	75	75
Union of South Africa	85	65	90
United Kingdom:			
Channel Islands	11	...	...
England	11	...	15
Northern Ireland	10	5	20
Scotland	11	...	15
Wales	11	...	15
United States	100	100	100
Uruguay	96	94	95
Venezuela	98	100	98
Virgin Islands	100	100	100
Yemen	75	100	...
Yugoslovia	50	60	45

CRACKING IN JAPAN

Modern cracking was introduced in Japan this year with the construction by the Foster-Wheeler Corporation of a 2,500-barrel cracking unit at the Nippon Oil Company, Ltd., refinery at Yamacuchi Ken. The new unit, now in operation, consists of an atmospheric tube still and tower, vacuum tube still and tower, stack, heat exchangers, coolers, pumps, receiving house, etc. Crude is heated in the atmospheric still and fractioned by the atmospheric tower into gasoline, naphtha, kerosene, gas oil, wax distillate, overhead cylinder stock, and asphalt bottoms. The Nippon Oil Company refinery is running on California crude.



The manufacturers and representatives of Tret-O-litE extend sincere best wishes for a Merry Christmas and a Happy New Year to you of the Oil Industry and your families

Tretolite Company

SUCCESSOR TO WM. S. BARNICKEL & COMPANY

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Field Problems and Their Solution

EDITED BY THOMAS F. SMILEY

In order that men connected with the drilling, producing and transporting branches of the petroleum industry may procure quickly a solution of many problems confronting them from time to time in their work, The Oil and Gas Journal has arranged with leading engineers and other recognized authorities to answer questions submitted by readers of this publication pertaining to the work of drilling and producing crude oil and transporting this product.

Everyone is invited to submit questions freely. These questions will be submitted to proper authorities by Mr. Smiley, who edits the page, and answers, based on the best available information, will be published. Each question should give as much detail as possible, especially where it relates to matters where depths of sands, types of sands and operations on adjoining properties would have a bearing on the problem involved. The source of all questions will be considered as confidential and only initials will be published in connection with the question.

In this connection, The Oil and Gas Journal will be glad to publish articles from field men who have devised new methods or practices which are improvements.

In case an immediate answer is important, one will be given by mail if the writer requests it.

DRAINAGE RADIUS OF WELLS

Do oil wells have a definite area of drainage? If not, is there such a thing as an average drainage area? If two or more wells are put down in the same drainage area doesn't that simply mean that you have gone to the expense of drilling two wells when one would serve just as well and get just as much oil out of ground as the two wells can?—S. L. O.

Your question involves the whole problem of well spacing, which is receiving the thoughtful consideration of engineers and production men generally.

The drainage radius of an oil well has been defined as the distance from the well to the point where the forces tending to move the oil toward the well are just balanced by the resistance to movement in the sand. This is not a permanent distance, but changes with the age of the well, being increased by the fall of pressure in the area close to the well and often greatly by the drive of encroaching edge water.

An American Petroleum Institute publication, "Function of Natural Gas in the Production of Oil," says on this point:

"Wells spaced too closely are believed to cause excessive gas by-passing, due to the probable intersection of the partially drained areas of several wells in the upper part of the sands. If it be considered theoretically that a cone of at least partly depleted oil sand exists around each well, spreading further back into the formation as time passes, and that these partly depleted sands allow the passage of gas toward the area of lower pressure —that is, toward the well—more freely than do the less depleted sands, it might easily follow that if the wells are spaced too closely their cones will intersect early in their lives and opportunity will be afforded for great loss of formation energy through inefficient expansion and by-passing of gas. The greater the pressure the sooner will the cones intersect between wells of a given spacing, because oil and gas will move toward the wells with greater velocity.

"Drilling wells too closely together would cause the same losses in efficiency as too high a rate of production from a single well—namely, excessive friction losses due to too rapid movement of fluid through the pore spaces of the sand. High Jamin effect would also result at an earlier stage, due to the more rapid drop in formation pressure and the consequent formation of gas bubbles throughout the sand.

"Wide spacing, on the other hand, makes for slower drainage of the sands; slow drainage, if carried on with proper operating methods, means less energy consumption per barrel of oil produced and therefore greater ultimate production by ordinary methods."

HAS WATER PROBLEM

A friend of mine whom I was telling about trouble I am having with water in one of my wells told me that in the Winkler County Field in Texas they have been dealing with about the same situation that I am in this well. The well makes about 125 bbls. of oil per day, but there is almost 1,000 bbls. of water along with it. My information is that they have succeeded in shutting off the water by packers in such wells in the Winkler Pool. I would be glad to get some information that would help me in dealing with this well of mine.—F. D. A.

Your information about shutting off bottom hole water in Winkler Field wells is correct, for it has been done in some instances, but it was not possible in all wells.

This method is by no means new, for packers have long been used in the industry and have been described in detail in publications of the U. S. Bureau of Mines, also in several handbooks such as Uren's "Petroleum Production Engineering" and W. H. Jeffery's book, "Deep Well Drilling," and others.

If there is a hard formation in a well between the oil sand and that portion of the well making water, and if the exact depth and thickness of this stratum are known, it is possible to effect a water shutoff by setting a packer in it.

The principal difficulty in applying this method comes from accurate or incomplete information of the bottom hole conditions in the well.

Packers of many types are available through the oil field supply companies and as each well presents its own particular problem it is suggested that you consult a representative of the supply company with which you trade and get advice and suggestions, for it is quite likely that its men will have detailed knowledge of your particular problem gained through experience with other wells in your field.

It is also possible in some instances to cement bottom hole water out of a well, but these repair jobs all call for expert handling and a thorough knowledge of the well. In your letter you do not give enough information to permit the engineering authority to whom it was referred to make any suggestions that would not be largely guesses. Such advice would not be worth anything to you and might mislead you, doing more harm than good.

If you care to submit a specific problem with full details this department will be glad to assist in any way possible, but as you must buy a packer at some supply store or have your cementing work done by a cementing company, it probably will be more satisfactory to get your information from one of them.

HOWELL STRUCTURE GEOLOGY

My interest in oil lies in wildcat leases in Livingston County, Michigan, where I own 250 acres of land 7 miles southeast of Howell. Is there any indication of oil in Genoa Township, Livingston County? Is rainbow oil surface in running water, say a small stream or spring, any indication of the presence of oil or may it come from vegetation? What is an offset well? I would appreciate any information you can give me, as we have nobody to consult—C. G.

You can obtain a recent report on the Howell structure in Livingston County, Michigan, from the Michigan state geologist. You will find in this report and the accompanying map information of interest to you. If you want any further details you probably can get the information desired from the state geologist.

A showing of oil on water, known as a "rainbow of oil," does not necessarily mean that oil in commercial quantities is to be found at the source of this oil thus forming the scum on the water. Colors seen at times on water may come from chemicals in solution, and some minerals in a finely divided state will refract light to give a rainbow appearance.

It is therefore essential that the rainbow on the water first be definitely identified as petroleum, and then traced to its source to ascertain whether it occurs in commercial quantities. Oil springs and seeps are quite common and have not by any means always led to the discovery of oil pools of commercial importance, although many of the leading pools of this country and abroad have been discovered by the evidence of such springs or seeps.

An offset well is described by Dr. Charles N. Gould, state geologist for Oklahoma, as follows: "An offset well is one drilled directly across the property line from another well. The distance that wells are drilled from the property line is largely a matter of gentlemen's agreement between the various owners of the wells. This distance differs in different fields and depends upon a number of factors, such as depth of the wells, thickness of sand, porosity of the sand, amount of oil, and some other factors. The whole matter of the proper spacing of wells is to obtain the greatest amount of oil from the ground with the least expenditure of money."

WHY WAS IT CALLED THAT?

STIRRUP

The word "stirrup" is derived from the Middle English "stirop" and the Anglo-Saxon "stigrap," from "stigan," to mount, and "rap," a rope. From meaning "to mount a rope" (and by extension "a mounting-rope") the word came to describe a bent piece of metal hung from a saddle to help a horseman in mounting.

The term was introduced into mechanics to designate various pieces of metal bent like the stirrup used with a saddle. These metal stirrups are used as connections between rods and other parts where a load is to be supported but must be free to move in more than one plane, such as the stirrup on a pitman at the end of a walking beam, or the stirrup above the polished rod connection on the sucker rods in a pumping well.

BENEFITS OF UNITIZATION

I would like to know more about the unitization method of developing an oil pool. Can you refer me to any literature on the subject? Or if the subject is not too involved perhaps you can tell me briefly about it. Has this method been put into practical operation anywhere or is it just a theory?—E. D. I.

First may we point out that there has been some objection raised to using the term "unitization" where "unit operation" of an oil pool is the thing under consideration.

Unitization is a word that has crept into use in the petroleum industry and one of the objections to it is its ending, "ation." This is associated in the minds of many persons with standardization, and standardization seems to imply in many cases a pooling of interests or formation of a kind of trust, and this is far from the object of the unit operation of oil pools.

There has been a great deal written about "unit operation," which is in actual use in many fields and gaining favor. In the August 7, 1930, issue of The Oil and Gas Journal there is an article about a pool in Oklahoma operated as a unit and the benefit derived from such operation is clearly outlined.

The American Institute of Mining and Metallurgical Engineers, petroleum division, is studying the problem as is the American Petroleum Institute and its benefits to all interested in the petroleum industry are becoming evident.

A bibliography of articles on unit operation can be obtained from the technical department of the Tulsa Library and articles on this subject appear in The Oil and Gas Journal from time to time. A new phase of the advantages of unit operation as suggested by Henry L. Doherty is contained in a report of the fall meeting of the petroleum division of the A.I.M.E. in Tulsa October 2 and 3, 1930, in the October 9, 1930, issue of The Oil and Gas Journal that is well worthy of consideration. It outlines a method of operation that will turn a pool into a reservoir for the storage of natural gas for future consumption and by so doing assist in driving the oil from the formation and effecting a more complete recovery of that commodity.

TREATING POLISHED STEEL

Please advise how to treat polished steel to prevent tarnishing and rusting. Also will appreciate the name of some manufacturer that makes paint that will stand heat and exposure to weather on a Diesel engine exhaust.—A. W. K.

If the polished steel to which you refer is not in motion and not subjected to any rubbing it is possible that you could protect it by the use of a mixture of caoutchouc and turpentine. Caoutchouc is a Central American rubber product and is also known as India rubber and gum elastic. When in a pure state it is white in color and has a chemical formula of $(C_5H_8)_x$. It is soluble in choloform and many oils but not in water or alcohol.

It is recommended that 1 part of caoutchouc and 16 parts of turpentine be dissolved with a gentle heat, then add 8 parts of boiled oil. Mix by bringing them to the heat of boiling water; apply to the steel with a brush, in the way of varnish. It may be removed with turpentine.

It is also possible to have bright steel parts chromium-plated which will give protection against corrosion, and if properly applied can be used on moving parts with success. There are a number of makers of heat-resisting paints. You will find their advertisements in The Oil and Gas Journal.

NEWS *for* OILMEN!

ONE OIL . . WINTER & SUMMER

A complete line of specification oils available now at wholesale prices!

These new motor oils (refined by Deep-Rock) give certainty of easy starting and perfect lubrication in the coldest weather—and the same identical oil will stand up under the stress of severest heat.

Imagine what this means in reduced inventory and storage! Eliminate winter lubrication difficulties immediately by ordering these zero pour point oils now, remembering that at the same time you are stocking oils of correct specifications and characteristics for spring, summer and fall trade when heat resistance is so necessary. With only one line of oils the whole year 'round, you eliminate storage complications and you can turn your money over faster and more often.

Leaders of the industry have tested these new oils and pronounce them "perfect" . . . the last word in lubrication progress . . . the very latest development in manufacture of ultra-quality automotive, aviation, tractor and industrial oils . . . specifications so astonishing as to be literally "years ahead".

Newest improved dewaxing equipment removes all wax. Other special processes eliminate free carbon. Triple filtration insures freedom from abrasives and foreign substances. Superlative refining produces a clear oil of perfect demulsibility and of unmistakable green cast, two color numbers lighter than other well refined paraffine base oils.

Not only the light oils but the ultra-heavy oils actually flow at zero—remarkable for 100% pure paraffine oils. A perfect seal is formed, lubrication is assured and consumption per mile is reduced to a minimum, due to the great heat resisting qualities of these new oils . . . highest flash and fire points and extremely high initial boiling point!

Be among the first to take full advantage of this remarkable opportunity. It is the result of many years research and refining experience by a company long known as "Pioneers in Public Service" and long recognized for "Leadership Among the Independents". Phone, wire or write today for samples, prices and full details.

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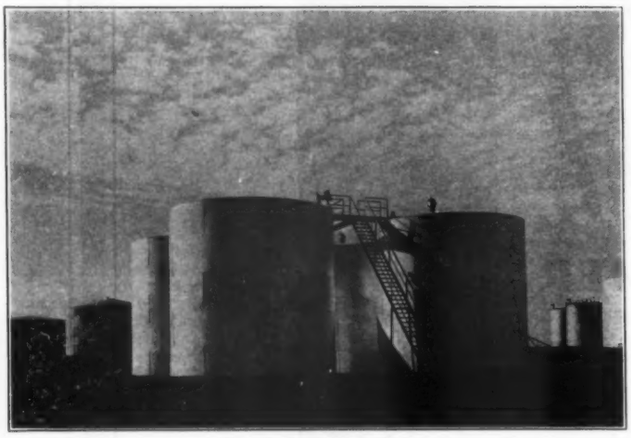
A Unit of the Standard Gas & Electric System

ALL WEATHER . GEOGRAPHICALLY UNIVERSAL .

PITTSBURGH DES MOINES

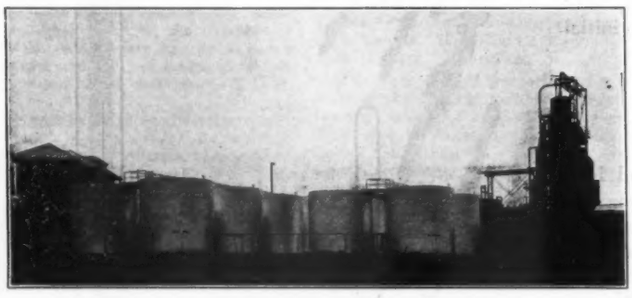


Four 2625-barrel PDM storage tanks each measuring 25 feet by 30 feet with welded cone roofs erected at Cushing for the Deep Rock Refining Company. In the background are 5,000 and 10,000-barrel tanks also included in this job.

Steel Storage Tanks and Oil Refinery Equipment

A total of forty-two PDM storage tanks of various capacities up to 10,000 barrels were recently erected by our field erection crews at Cushing, Oklahoma, for the Deep Rock Refining Company, after fabrication in our Des Moines plant. These two views show some of the completed tanks.

An eastern fabricating plant at Pittsburgh and a third of a century's experience in supplying equipment to oil fields and refineries further augment Pittsburgh-Des Moines service.



Sixteen 1120-barrel PDM storage tanks each measuring 20 feet diameter by 20 feet high with welded cone roof construction just completed for the Deep Rock Refining Company at Cushing, Okla.

Standard sizes and types of PDM storage tanks can often be supplied direct from the eastern or western stocks of our two plants. Send us your detailed specifications, and we will submit quotation and quickest shipment available from either plant.

PDM TANKS PITTSBURGH

Pittsburgh-Des Moines Steel Co.

3413 Neville Island, Pittsburgh — 1225 Praetorian Bldg., Dallas — 915 Tuttle St., Des Moines

New York San Francisco Seattle Chicago Atlanta

LOUISIANA-ARKANSAS PROVEN AREAS

(Rotary operations unless otherwise designated.)

(Continued from Page 46)

CADDO PARISH—HOSSTON

Bayou State Oil Corp.'s No. 6 Barr, 470 ft. N, 425 ft. W, SE cor., SW, Sec. 30-22-15.....Began drlg. Dec. 3; cmtd. 10-in. 44 ft; 6-in. 1,140 ft.

CADDO PARISH—OIL CITY

The Texas Co.'s No. 73 Levee Board, 1,642 ft. E, 780 ft. N, SW cor. SW SE, Sec. 27-21-16.....Location.

The Texas Co.'s No. 74 Levee Board, 1,600 ft. S, 200 ft. W, NE cor., Sec. 33-21-16 .....W.O.S.R; 200 ft. oil; T.D. 1,838 ft.

The Texas Co.'s No. 75 Levee Board, 2,450 ft. S, 224 ft. W, NE cor., Sec. 33-21-16 .....Derrick.

CADDO PARISH—PINE ISLAND

The Texas Co.'s No. 8 J. F. Herndon, 990 ft. N, 990 ft. W, SE cor. SW, Sec. 14-21-15 .....Rigging up to deepen; old T.D. 3,682 ft.

CLAIBORNE PARISH—HOMER

La. Oil Ref. Corp.'s No. 1 Langston, 660 ft. S, 528 ft. E, NW cor. SW SW, Sec. 19-21-7.....Cmtd. 12½-in. 645 ft; drlg. 1,470 ft; cmtd. cavity 1,480 ft; D.S. stuck.

DE SOTO PARISH—HOLLY

Standard Oil Co.'s No. 1-B Dowling Bros., 200 ft. N, 396 ft. W, SE cor. SW SW, Sec. 32-14-13.....13-ft. broken sand 2,813-26 ft; cmtd. 6⅝-in; tested 30,000,000 ft. gas and spray oil 2,829 ft; arranging to deepen.

Standard Oil Co.'s No. 1 Hoell, 264 ft. E, 170 ft. N, SW cor., Sec. 32-14-13 .....Derrick.

LA SALLE PARISH—URANIA

Montugu Oil Co.'s No. 11 Zenoria Lbr. Co., 660 ft. S, 660 ft. W, NE cor. .....Began drlg. Nov. 25; cmtd. 10-in. 105 ft; 6-in. 1,491 ft; W.O.S.R. 1,513 ft.

MOREHOUSE PARISH

Bahan & Bahan's No. 4 Feazel, 900 ft. W, 330 ft. S, NE cor., Sec. 2-20-4 .....Location.

OUACHITA PARISH

Bahan & Bahan's No. 1 Fabolio, 660 ft. S, 660 ft. W, NE cor., Sec. 35-19-3 .....Derrick.

Bahan & Bahan's No. 1 Smith, 249 ft. W, 535 ft. N, SE cor. SW, Sec. 24-18-3 .....Location.

La. G. & F. Co.'s No. 4 fee (was Industrial Gas Co.'s), 1,334 ft. N, 652 ft. W, SE cor., Sec. 2-19-3.....Cmtd. 6-in. 2,122 ft.

Jordan Drlg. Co.'s No. 7 Cole, 265 ft. S, 1,459 ft. W, NE cor., Sec. 49, in Sec. 50-18-4.....Location (reported drlg. in error).

Jordan Drlg. Co.'s No. 1 School, 216 ft. S, 244 ft. W, NE cor. NW, Sec. 16-18-4.....Cmtd. 6-in. 2,135 ft.

United Carbon Co.'s No. 6 Spade, 1,180 ft. S, 140 ft. E, NW cor., Sec. 27-19-4 .....Location.

RICHLAND PARISH

W. C. Feazel's No. 1 R. B. Simon, 2,406 ft. W, 2,020 ft. S, NE cor., Sec. 11-16-6 .....Rig moved; derrick.

Franklin O. & G. Co.'s No. 1 Thompson, 660 ft. N, 165 ft. W, SE cor. NE, Sec. 14-16-6.....Location.

Hope Prod. Co.'s No. 2 H. L. Thomason, 669 ft. E, 660 ft. S, NW cor., Sec. 11-16-6.....Began drlg. Dec. 3; cmtd. 12½-in. 180 ft; 9-in. 911 ft; drlg. 1,509 ft.

Palmer Corp.'s No. 1 Holdiness, 552 ft. S, 2,215 ft. W, NE cor., Sec. 8-16-6 .....Cmtd. 6-in. 2,298 ft.

United (was Southern) Carbon Co.'s No. 2 Cooper, 660 ft. N, 3,551 ft. E, SW cor., Sec. 13-16-6 .....Location.

Southern Carbon Co.'s No. 1-B Hale, 1,320 ft. N, 660 ft. E, SW cor., Sec. 15-16-6 .....Cmtd. 8-in. 758 ft.

Southern Carbon Co.'s No. 2-B J. H. Hemler, Sec. 14-16-6.Drlg. 1,945 ft.

Southern Carbon Co.'s No. 1-D M. and M. McCoy, 1,-980 ft. S, 660 ft. W, NE cor., Sec. 30-16-6.....Cmtd. 12½-in. 180 ft; 8-in. 878 ft.

Southern Carbon Co.'s No. 7 F. B. and E. A. Sartor, 2,540 ft. S, 660 ft. E, NW cor., Sec. 17-16-7.....Location.

Southern Carbon Co.'s No. 1-E Thomason, 2,300 ft. S, 100 ft. E, NW cor., Sec. 32-16-6.....Drlg. 2,255 ft.

State Line O. & G. Co.'s No. 1-A Boughton, 1,683 ft. E, 127 ft. S, NW cor. SW, Sec. 33-16-6.....Milling on junk; T.D. 2,475 ft.

State Line O. & G. Co.'s No. 1 Hewitt, 1,721 ft. S, 957 ft. E, NW cor. SW, Sec. 32-16-6.....Cmtd. 9-in. 882 ft.

State Line O. & G. Co.'s No. 1 Noble-Morris, 917 ft. N, 389 ft. W, SE cor. SE SW, Sec. 35-16-5.....Derrick.

United Carbon Co.'s No. Lindow, 1,980 ft. S, 37 ft. E, NW cor., Sec. 15-16-6.....Rig up.

SABINE PARISH—PLEASANT HILL

F. A. Bartlett, Jr.'s No. 1 Logan, 200 ft. S, 200 ft. E, SW cor., Sec. 27-10-12 .....Cmtd. 6-.in 2,945 ft.; blew out 10,000,000 ft. gas and spray of oil; T.D. 2,952 ft.

SABINE PARISH—ZWOLLE

W. M. Coates' No. 1 Sabine Lbr. Co., 424 ft. N, 424 ft. E, SW cor. NW NW, Sec. 1-7-12.....D.S. test 2,390 ft; dry; drlg. 2,410 ft.

Tom Davis' No. 1 Holliday (was T. D. Allison's), Sec. 31-8-12, Zwolle Townsite .....S.D. wtr. 1,350 ft.

F. M. Hood's No. 1-B Winston (was No. 2), 700 ft. E, 425 ft. S, NW cor., Sec. 31-8-12, Zwolle Townsite..S.D. 1,065 ft.

Ab Jones et al's No. 1 Ferguson, 330 ft. N, 330 ft. W, SE cor. NE SW, Sec. 33-8-12.....Rig up.

Ohio Oil Co.'s No. 1 Brown, 330 ft. N, 330 ft. W, SE cor. SW SW, Sec. 35-8-12.....Rig up.

Pelican Nat. Gas Co.'s No. 6 La. Long Leaf Lbr. Co., 200 ft. N, 200 ft. W, SE cor. NW SW, Sec. 4-7-11..2,000 ft. oil; W.O; S.D; T.D. 2,347 ft.

H. W. Perritt, tr.'s No. 1 Bowman-Hicks, 330 ft. N, 330 ft. W, SE cor. SW, Sec. 2-7-12.....Flowing by heads.

Wheatcroft et al's No. 1 Sabine Lbr. Co., SW NE, Sec. 31-8-12 .....S.D. 2,495 ft.

SABINE PARISH—BLUE LAKE

R. L. Gay's No. 9 Bowman-Hicks, 330 ft. N, 330 ft. W, SE cor. NE SW, Sec. 18-7-13.....Show oil and gas 2,234 ft; tested dry; D.S. test 2,520 ft; dry; bailing to test 2,668 ft.

WEBSTER PARISH—SAREPTA

Cassidy & Davis' No. 1 Nickerson, 300 ft. S, 300 ft. W, NE cor. SW, Sec. 29-23-10.....Derrick.

ARKANSAS

JOHNSON COUNTY

(Cable tools)

Ark.-La. P. L. Co.'s No. 1 Hudson et al, 660 ft. N, 545 ft. E, SW cor. SE NE, Sec. 14-10-24 .....Drlg. 1,795 ft.

Ark.-La. P. L. Co.'s No. 1 Mattie Kelly, 330 ft. S, 657 ft. E, NW cor. SW SW, Sec. 14-10-24 .....Arranging to cmt. 6⅝-in. 2,910 ft.

River Valley Gas Dev. Co.'s No. 1 W. F. Collier, 350 ft. S, 330 ft. E, NW cor. SE SE, Sec. 21-9-25 .....Drlg. 1,150 ft.

OUACHITA COUNTY—SMACKOVER

L. H. Hamilton's No. 3 Doyle, 100 ft. E, 400 ft. N, SW cor. SE SE, Sec. 23-15-16 .....Sidetracking 400 ft. 6-in.; T.D. 2,020 ft.

OUACHITA COUNTY—STEPHENS

Wesson & Bonner's No. 1 Wesson, 500 ft. W, 175 ft. N, SE cor. SW NW, Sec. 22-15-19 .....Began drlg. Dec. 3; cmtd. 10-in. 108 ft; 6⅝-in. 2,083 ft.

SEBASTIAN COUNTY

Ozark Nat. Gas Co.'s No. 1 Wright, C NW NE, Sec. 29-8-30 .....Drlg. 1,700 ft.

UNION COUNTY—CHAMPAGNOLLE

Ohio Oil Co.'s No. 10 Crain, 330 ft. S, 330 ft. W, NE cor. SE SW, Sec. 1-17-14 .....Full fluid 9,590 ft; S.W; 25 ft. broken sand; W.O.S.R. 3,010 ft.

Ohio Oil Co.'s No. 11 Crain, 330 ft. N, 330 ft. W, SE cor. SE SW, Sec. 1-17-14 ..... Derrick.

UNION COUNTY—EL DORADO

Rice Drlg. Co.'s No. 1 Watley, 150 ft. S, 150 ft. E, NW cor. SW, Sec. 7-17-15 ..... S.D; repairing rig; T.D. 1,520 ft.

Southern Production Co.'s No. 1 Wingfield, NE cor. SE NW, Sec. 16-19-15 ..... Rig up.

UNION COUNTY—SMACKOVER

J. E. Crosbie et al's No. 1 G. L. Murphy, 300 ft. N, 300 ft. W, SE cor., Sec. 13-16-16 ..... Cored red beds 3,275 ft; T.D. 4,667 ft.

EAST TEXAS
HARRISON COUNTY

Calatex O. & G. Co.'s No. 6 Argus, 755 ft. N, 699 ft. W. Mile Post 27, in J. Womack Sur. ..... Location.

Shell Rock Pet. Co.'s No. 1 Oliver Dougherty, W. D. Burris Sur. ..... S.D. brown chalk 3,540 ft.

PANOLA COUNTY

Ark.-La. P. L. Co.'s No. 2-A G. W. Brumble, 477 ft. W, 473 ft. S, NW cor. Jno. Womack Sur., in B. C. Jordan Sur. ..... Drlg. oolitic lime.

Dillon & Brodhorn's (was W. G. Banks et al) No. 1 C. O. Baldwin, 1,395 ft. W, 1,362 ft. S, NE cor. Baldwin 290 ac. in Hampton West Sur. ..... Rig up.

S. E. Bell et al's No. 1 Burnett Lbr. Co., C, S. B. Hendricks Sur. ..... S.D. for repairs 2,863 ft.

Creighton & Hart's No. 1 Greeny-Kyle, C, Greeny-Kyle 60 ac., Jas. Tippett Sur. ..... Drlg. hard lime 3,488 ft.

Texas-La. Prod. Co.'s No. 1 Baker, 1,000 ft. N, 550 ft. W, SE cor., 63-ac. Baker tr., in B. C. Jordan Sur. ..... Cmtd. 9-in. 3,450 ft.

Knox et al's No. 1 Dunham (was Jackson et al's), 150 ft. W, 150 ft. N, SE cor. M. I. Dunham 29 ac., in Chas. Haley Sur. ..... Show gas and S.W. 2,888 ft; W.O.

Nat. Gas Prod. Co.'s No. 1 H. H. Alvord, 6,777 ft. S, 6,162 ft. E, NW cor., B. C. Jordan Sur. ..... Drlg. 3,000 ft.

Nemours Corp.'s No. 7 Brumble, 2,291 ft. S, 876 ft. W, NE cor. E. F. Mitcheson Sur. ..... Began drlg. Dec. 4; cmtd. 10-in. 63 ft; drlg. 1,960 ft.

Doris Thomason's No. 15 Crenshaw, 1,992 ft. S, 2,305 ft. E, SW cor., Jno. Womack Sur., in B. C. Jordan Sur. ..... Derrick.

UNION COUNTY—SMACKOVER

J. E. Crosbie et al's No. 1 G. L. Murpy, 300 ft. N, 300 ft. W, SE cor. SW NW, Sec. 13-16-16 ..... O.W.D.D; completed Nov. 8, 1930; pumping 100 bbls. 50% S.W., 2,740 ft; coring 2,835 ft.

MISSISSIPPI
RANKIN COUNTY

Feazel O. & G. Co.'s No. 1 Cox, SE cor. SE SE, Sec. 12-5-1e ..... Derrick.

Gulf Ref. Co.'s No. 1 Hamilton, 1,320 ft. N, 1,320 ft. E, SW cor., Sec. 12-5-1e ..... Small show oil 2,620 ft. and 2,660 ft; cored chalk 2,857 ft; reaming 3,025 ft; T.D. 3,049 ft.

Southern Pet. Co.'s No. 1 Ivey, SE, Sec. 12-5-1e ..... Drlg. shale 1,358 ft.

WILDCAT OPERATIONS IN LOUISIANA-ARKANSAS

(Continued from Page 46)

DE SOTO PARISH

J. M. Bridges, tr.'s No. 1 Cook Land Co., 990 ft. W, 330 ft. S, NE cor., Sec. 16-10-11 ..... Cored shale 3,190 ft.

J. W. Clark's No. 1 Tidwell, 250 ft. S, 250 ft. E, NW cor. NW, Sec. 22-13-14 ..... Gas blowout 3,096 ft.

S. A. Guy's No. 1 Dowling Bros., 469 ft. E, 382 ft. S, NW cor. NE, Sec. 31-14-14 ..... S.D; sandy shale 1,354 ft.

Bud Harrell's No. 1 Horton, 450 ft. E, 150 ft. N, SW cor., Sec. 4-11-11 ..... S.D. 1,060 ft.

Keatchie O. & G. Co.'s No. 1 Hallie Smith (was H. E. Weichert's), NE SE, Sec. 31-14-15 ..... Cored hard limey shale 1,833 ft.

C. D. Neff et al's No. 1 H. P. Dowling, 240 ft. N, 240 ft. W, SE cor., Sec. 18-13-14 ..... Drlg. 520 ft.

C. D. Neff et al's No. 1 Ramsey, 1,000 ft. W, 400 ft. S, NE cor. SE, Sec. 33-13-14 ..... Derrick.

LA SALLE PARISH

La. G. & F. Co.'s No. 2-B Tensas, 1,980 ft. W, 1,321 ft. S, NE cor., Sec. 23-7-4 ..... Rig up.

NATCHITOCHES PARISH

W. M. Coats' No. 1 Collins, 730 ft. N, 50 ft. E, C, Sec. 28-9-10 ..... S.D. 3,718 ft.

J. W. Cooper et al's No. 1 Cooper, NW SW, Sec. 35-11-10.. Drlg. hard chalk 1,802 ft.

Cooper et al's No. 2-A Cooper, C SE SE, Sec. 32-11-10.... Fishing 600 ft; D.S; T.D. 1,150 ft.

Gulf Ref. Co.'s No. 1 Bodcaw, 1,910 ft. S, 605 ft. W, NE cor., Sec. 13-13-8 ..... Drlg. sandy shale 1,156 ft.

RED RIVER PARISH

Lucky Strike Oil Co.'s No. 1 Chaffraix, 200 ft. S, 200 ft. E, C, Sec. 33-12-10 ..... S.D; contract depth 3,000 ft.

T. G. Shaw's No. 1 Wilkerson, 460 ft. N, 200 ft. W, SE SE, Sec. 4-12-10 ..... Flowed 30 bbls. in 12 hrs, went dead.

RICHLAND PARISH

Alto Gas Co.'s No. 2 Hunt, 660 ft. S and E, NW cor., Sec. 13-17-5 ..... Derrick.

W. C. Feazel's No. 1 Landrum, 620 ft. N, 4,573 ft. E, SW cor., Sec. 6-16-17 ..... Derrick.

La. G. & F. Co.'s No. 1 Clanton, 262 ft. E, 618 ft. N, SW cor. NW SE, Sec. 23-17-6 ..... Began drlg. Dec. 6; cmtd. 12½-in. 192 ft.

Palmer Corp.'s No. 2 Seubert, 660 ft. N, 660 ft. W, SE cor. SE NW, Sec. 35-17-5 ..... Location.

Pelican Nat. Gas Co.'s No. 1 Faust Bros., 1,980 ft. E, 660 ft. N, SW cor. NW, Sec. 13-17-5 ..... Fishing 2,300 ft.

SABINE PARISH

Diffie & Barnett's No. 1 Lites (was J. W. Clark's), 330 ft. N, 330 ft. W, SE cor. SW NW, Sec. 34-8-11.. Began drlg. Nov. 20; cmtd. 10-in 105 ft.

Tom David's No. 1 Smith, 460 ft. N, 200 ft. W, SE cor. SE SE, Sec. 27-8-10 ..... S.D. 2,150 ft.

Esaco Pet. Co.'s No. 1 La. Long Leaf Lbr. Co., 487 ft. N, 44 ft. W, SE cor. SW SW, Sec. 35-8-11..... Drlg. 1,400 ft.

Eylers O. & G. Co.'s No. 1 Frazier, 330 ft. S, 330 ft. W, NE cor. NW SW, Sec. 10-8-11 ..... Reaming to bottom; T.D. 2,385 ft.

Franks et al's No. 1 Dew, 200 ft. N, 300 ft. E, SW cor. SE, Sec. 22-8-11 ..... Drlg. 1,605 ft.

R. L. Gay, tr.'s No. 1-A Sabine Lbr. Co., 212 ft. S, 170 ft. E, NW cor. SE NW, Sec. 1-7-12 ..... 6-in. stuck 2,200 ft; arranging to set 4½-in; T.D. 2,290 ft.

Lacy Jessup Oil Co.'s No. 1 Brown Lbr. Co. (was Lacey et al's), C NW NE, Sec. 28-8-10 ..... Top chalk 2,690 ft; drlg. 2,750 ft.

Lacey Prod. Co.'s No. 1 Cooper, 330 ft. N, 330 ft. W, SE cor. SW NW, Sec. 30-8-11 ..... Dry; no show 2,370 ft; 400 ft. oil in hole; S.D; W.O. 2,600 ft.

Lyons & Neely's (was Lacey Prod. Co.) No. 2 Cooper, 330 ft. N, 330 ft. W, SE cor. SW NW, Sec. 32-8-12... Began second hole Nov. 26; cmtd. 10-in. 100 ft; drlg. 1,950 ft.

Lide et al's No. 1 Ponder, 990 ft. N, 990 ft. W, C, Sec. 15-7-11 ..... Top marl 2,395 ft; cmtd. 6-in. 2,385 ft; T.D. 2,407 ft; tested dry 2,412 ft; 100 ft. oil in hole from 2,422 ft; D.S. test dry; show oil and gas 2,800 ft; tested dry.

Towery Drlg. Co.'s No. 1 Sabine Lbr. Co. (was D. M. Lide's), 330 ft. S, 330 ft. E, NW cor., Sec. 12-7-12.. Cmtd. 6-in. 2,335 ft.

Longoria et al's No. 1 Belton, 330 ft. S, 330 ft. E, C, NE, Sec. 31-9-12 ..... Rig up.

Lyons & Neely's No. 1 Cooper (was Lacey Prod. Co.'s), 300 ft. N, 330 ft. W, SE cor. SW NW, Sec. 32-8-11... Reported location in error.

Magnolia Pet. Co.'s No. 1 R. J. Tucius, 990 ft. S, 990 ft. W, NE cor. NW NE, Sec. 2-5-12 ..... Location.

McDaniel & Lieber's No. 2 Batson, 480 ft. S, 220 ft. E, NW cor. SW SE, Sec. 16-8-12 ..... Drlg. 2,553 ft; S.D.

Frank Melat, Inc.'s No. 1 Sabine Lbr. Co., 330 ft. N, 330 ft. E, SW cor. SW SW, Sec. 6-7-11 ..... Rig up.

Frank Melat, Inc.'s No. 2 Sabine Lbr. Co., 330 ft. S, 330 ft. W, NE cor. NE NW, Sec. 14-7-12 ..... Drlg. 500 ft.

Merritt et al's No. 1 La. Long Leaf Lbr. Co., S½ NE NE, Sec. 33-8-11 ..... Top marl 2,300 ft; drlg. 2,356 ft.

P. & G. Oil Co.'s No. 1 Williams, 330 ft. S, 330 ft. W, NE cor. SE NW, Sec. 21-7-12 ..... Location.

Paramount O. & G. Co.'s No. 1 Woolems, 330 ft. N, 330 ft. W, SE cor. NE NW, Sec. 11-6-12 ..... Small show oil 2,580 ft.

W. P. Pearce et al's No. 1 G. Pearce, 330 ft. N, 330 ft. W, SE cor. SW NW, Sec. 10-7-11 ..... Rig up.

Pelican Nat. Gas Co.'s No. 7 La. Long Leaf Lbr. Co., 300 ft. S, 300 ft. W, NE cor. NW SW, Sec. 10-7-11.... Began drlg. Dec. 9; drlg. 50 ft.

Pelican Nat. Gas Co.'s No. 7 Sabine Lbr. Co., 300 ft. S, 300 ft. W, NE cor., Sec. 11-7-12..... Began drlg. Dec. 6; cmtd. 12-in. 100 ft; drlg. 735 ft.

D. H. Riddick's No. 1 Scretchfield, 400 ft. E, 400 ft. N, SW cor. NW SE, Sec. 15-9-12 ..... Made 30-ft. hole 3,280-3,310 ft. S.D.

C. W. Robinson's No. 1 Tramwell, 300 ft. W, 200 ft. N, SE cor. NE NE, Sec. 5-7-11 ..... Cmtd. 6⅝-in. 2,241 ft. on top of marl.

T. G. Shaw et al's No. 1 Sabine Lbr. Co., 150 ft. N, 150 ft. E, SW cor., Sec. 1-7-12 ..... Began Drlg. Dec. 6; cmtd. 10-in. 80 ft.

Trans-America Oil Corp.'s (was Southland Oil Co.) No. 1 Carter, 1,030 ft. W, 345 ft. N, SE cor. SE NE, Sec. 36-8-12 ..... Began drlg. Dec. 1; cmtd. 10-in. 103 ft; S.D. 2,211 ft.

A. H. Tarver, trustee's No. 1 Baker, 330 ft. S, 330 ft. E, NW cor. NE, Sec. 36-8-12 ..... Cmtd. 8-in. 2,212 ft; fishing D.S; T.D. 2,272 ft.

Toteco Oil Co.'s No. 1 La. Long Leaf Lbr. Co., 325 ft. S, 100 ft. W, NE cor. NW, Sec. 18-6-12..... Drlg. 4,320 ft.

The Texas Co.'s No. 1 Stoker, 330 ft. E, 300 ft. S, C, Sec. 10-7-11 ..... Cmtd. 6-in. 2,368 ft.

Triangle Pet. Co.'s No. 1 Sabine Lbr. Co. (was R. B. Whittle's), 330 ft. N, 330 ft. E, SW cor. SE SW, Sec. 36-8-12 ..... S.D. 1,075 ft.

Wilson & Son's No. 1 Gandy-Garrett, NW SW, Sec. 4-5-12 (portable rig) ..... Drlg. 1,930 ft.

John Woodley's No. 1 Sabine Lbr. Co., 400 ft. S, 330 ft. W, NE cor. SE, Sec. 12-8-12 ..... Derrick.

TENSAS PARISH

Seip et al's No. 1 Fowler, C SW NE, Sec. 10-10-10..... S.D. 905 ft.

A. R. Willis et al's No. 1 Currey, 1,320 ft. S, 1,320 ft. E, NW cor., Sec. 39-11-13..... Reamed to bottom; S.D. 2,780 ft.

WEBSTER PARISH

Coyle, trustee's No. 1 Frazer, 200 ft. N, 200 ft. E, SW cor. NE SE, Sec. 27-23-11 ..... Derrick.

Gehrig's (was Girard Oil Co.) No. 1 R. H. Miller, 330 ft. S, 990 ft. W, C Sec. 16-18-10 ..... Drlg. 850 ft.

ARKANSAS
CHICOT COUNTY

H. R. Smith's No. 1 Lytle, 660 ft. N, 660 ft. E, C, Sec. 31-18-3 ..... Cmtd. back to 2,888 ft; T.D. 2,925 ft.

CLAY COUNTY

S. C. Jeffus, trustee's No. 1 Underwood, 510 ft. N, 350 ft. W, C NW SE, Sec. 4-20-8 ..... Tested estimated 1,000,000 ft. gas 280 ft; cmtd. 10-in. 305 ft; S.D. 330 ft.

S. C. Jeffus, trustee's No. 2 Underwood, 568 ft. N, 300 ft. W, C NW SE, Sec. 4-20-8..... Began drlg. Dec. 6; drlg. 100 ft.

CLEBURNE COUNTY
(Cable tools)

Donnelly-Craver et al's No. 1 Donophan Lbr. Co., SE cor. NW, Sec. 33-11-9 ..... Cmtd. 6-in. 3,740 ft.

COLUMBIA COUNTY

J. W. Olvey et al's No. 1 Kate George, 200 ft. N, 245 ft. E, SW cor. NW SW, Sec. 29-18-20 ..... S.D. 3,462 ft.

DALLAS COUNTY

J. H. James, tr.'s No. 1 Fordyce Lbr. Co., NW cor., Sec. 11-9-15 ..... Derrick.

FRANKLIN COUNTY

Red Bank Oil Co.'s No. 1 Hamm, 660 ft. N, 660 ft. E, C, Sec. 33-10-6 ..... O.W.D.D; completed Oct. 8; estimated 6,500,000 ft. gas; 775 lbs. rock, 3,750 ft; plugged back to 3,050 ft; pulling tubing; old T. D. 3,750 ft.

GARLAND COUNTY
(Cable tools)

Givens et al's No. 1 Garrett, 660 ft. S, 660 ft. W, C, Sec. 1-3-19 ..... Hole full S.W; pulling 5 3/16-in; T.D. 3,756 ft.

HOT SPRINGS COUNTY

Anisman et al's No. 1 Hinson est, NE NE, Sec. 19-4-16... (portable rig) ..... Claim gas show 14-ft. sand 1,604 ft; arranging to cmt. 5 3/16-in.

John Watkins No. 1 Cunningham (was J. R. Lockhart's), 285 ft. S, 285 ft. W, NE cor., Sec. 11-5-16.... Cmtd. 12½-in. 42 ft; S.D. 110 ft.

LAFAYETTE COUNTY

McIver et al's No. 1 Hottle, NW cor. NE, Sec. 1-20-6 .... Began drlg. Nov. 8; S.D. 21 ft.

LINCOLN COUNTY

B. F. Thompson, trustee's No. 1 McGhee, 330 ft. S, 150 ft. W, C, Sec. 8-8-7 ..... Rigging up.

LITTLE RIVER COUNTY

G. R. Stevens et al's No. 1 Greason (was A. L. Buck's), NW NW, Sec. 25-12-32 ..... Milling on junk 2,322 ft; T.D. 2,502 ft.

LOGAN COUNTY

Ark.-La. P. L. Co.'s No. 1 Jno. Jansen, 350 ft. S, 455 ft. E, NW cor. NE NE, Sec. 35-8-24..... Drlg. 1,325 ft.

J. H. Flowers' No. 1 J. H. White, Sec. 13-6-26..... U.R. 5 3/16-in. 3,570 ft; T.D. 3,610 ft.

MADISON COUNTY
(Cable tools)

J. W. Baxter's No. 2 Hallin, C, Sec. 17-16-25..... T.A. 405 ft.

J. W. Baxter's No. 3 Hallin, NE SW, Sec. 1-17-26 ..... Drlg. 50 ft.

MILLER COUNTY

Bullock Oil Co.'s No. 1 Hervey, SE NE, Sec. 33-14-26.... Drlg. 2,400 ft.

East Texas O. & G. Co.'s No. 1 Harvey, 500 ft. E, 300 ft. S, NW cor., Sec. 2-15-26 ..... 2-ft. sand 888 ft. dry; S.D; W.O. 900 ft.

E. & F. Oil Co.'s No. 1 E. L. Beck, 200 ft. S, 200 ft. E, NW cor. SW, Sec. 36-15-26..... Sidetracking short string 4½-in; T.D. 2,961 ft.

Fitzwater et al's No. 1 Beck, 200 ft. N, 200 ft. W, SE cor. SW SE, Sec. 33-15-26 ..... Began drlg. Oct. 13; cmtd. 10-in. 93 ft.

Gusher Bend Oil Co.'s No. 1 Adams, 120 ft. S, 800 ft. W, NE cor. NW, Sec. 26-14-26 ..... Began drlg. Dec. 9; drlg.

Lens et al's No. 2 Johnson, SE cor., Sec. 24-15-16..... Cored sand showing oil; T.D. 3,600 ft.

Lens et al's No. 3 Johnson, 250 ft. W, 150 ft. N, SE cor. NE NW, Sec. 24-15-26 ..... Coring 2,840 ft.

Salzer & McRae's No. 1 Rose, SW cor. NE NW, Sec. 9-16-26 ..... S.D. fuel 475 ft.

OUACHITA COUNTY

Belmont et al's No. 1 Buck, SE cor. SE SW, Sec. 16-15-17. S.D. 2,907 ft.

Copenhaven et al's No. 1 Elliott, Sec. 11-15-17..... Cored lime 2,100 ft.

Graves Bros.' No. 1 Walker, 350 ft. N, 280 ft. E, SW cor., Sec. 9-14-18 ..... Cored sand, show oil 2,013-20 ft; arranging test.

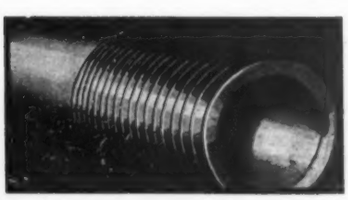
(Continued on Page 121)

Easily applied

..... it makes pipe joints tight .....

It takes only a few seconds to apply Gilbert & Barker Pipe Sealing Compound to all joints in all couplings, tees and elbows when installing gasoline oil handling equipment. But the protection it affords is as permanent as the line itself. Gas and oil cannot leak past joints sealed the G & B way. No chance for seepage. No stock losses. No expensive overhauling at some future date. Absolute protection for years to come.

Gilbert & Barker Pipe Sealing Compound comes in cans of three sizes; ⅛ pint for 15c, a handy size for the tool kit; pint for 75c, a good size for general shop use, and quart for $1.45, the size to keep on hand for supply.



Fill the male threads *only* with G & B Pipe Sealing Compound, after all threads have been thoroughly cleaned. No time wasted but you give non-crumbling, leak-proof joints to the entire line.

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CLEANING ROTARY MUD IMPORTANT FACTOR IN MODERN DRILLING WORK

By George L. Morehead
Vice President, Link-Belt Co., Philadelphia, Pa.

Clean mud. The expression in itself seems almost contradictory. The layman can hardly associate mud as mud with cleanliness, nor can he associate cleanliness with mud. However, to the man who operates a rotary drilling equipment in the oil field, the expression "clean mud" has a very definite meaning. In fact, to him it stands for that alluring thing that he has always wanted but seldom had on a drilling operation.

Mud fluids have for years been used as a carrying medium to remove rotary drilling chips or cuttings from the bottom of the hole and bring them to the surface. These mud fluids have throughout these years served the driller well. At the same time they have been in a good many cases a source of annoyance almost to the point of exasperation. In more recent years where deeper drilling has been undertaken, through geological formations of a character which did not lend themselves to the making of a suitable mud fluid by simply mixing the material removed by drilling with the rotary water, it has come to represent considerable expense.

Clean mud fluid, or clean mud, to the rotary operator means, for one thing, a mud that is free from rough cuttings or sand. These foreign particles when circulated through the mud system work havoc with pump liners and valves, may plug up the drill bit, and if they are present in any considerable quantity may stick the tools in the hole if circulation is through any cause interrupted.

In addition, when gas is present the mud becomes "gas cut," and unless the gas is removed from the mud before it is re-circulated, the normal weight per gallon is reduced, and it becomes too light to be of further use, and must be thrown away or doctored.

Again, on many locations available native muds do not make a mud fluid that is equal to the requirements or conditions under which the drilling operation is being carried on. In these cases other materials in the form of imported clays or compounds must be added to produce a mud fluid of desired weight and general characteristics. These materials add expense, and it therefore becomes more imperative that the mud be cleaned, instead of being discarded and thrown away.

In other words, separate the good from the bad—throw the bad away and use the good, keeping the good good by a continuous cleaning process.

Link-Belt Co. has recently introduced into the oil fields a mud cleaning device that is new to the oil industry but old to many other industries. It is a self-contained vibrating screen that has been in successful use on a commercial basis on many other materials for five or more years. This seems to be a case of teaching an old dog new tricks. In other words, an old and tried machine was given the new job of cleaning rotary mud. It removes the rough foreign particles down to a size that will be retained on a 30 to 40 mesh screen, and "degasses" the mud during the operation.

The mechanism is extremely simple, both in construction and operation. It consists of a suitable screen deck carried in a suitable screen box, which screen box is in turn carried on four heavy springs of the flat clock spring type. The carrying springs are carried in spring boxes mounted on a steel subframe. A high frequency vibrating motion is imparted to the screen box and to the screen deck by means of a rotating shaft mounted directly underneath and attached to the screen box. The shaft is carried in dirt-sealed antifriction bearings. Mounted on the rotary shaft are out-of-balance pulleys, which pulleys are so designed as to permit the varying of the intensity of the vibration by the use of selected sizes of counterweights that are furnished with the machine. The vibrator shaft is driven at about 1,800 revolutions per minute through a multiple V-belt by either an electric motor or steam turbine.

The machine is set up in an inclined position at a convenient place outside of the derrick, and in such a manner that the mud fluid being discharged from the hole is delivered along the top edge of the screen. The good fluid passes through this screen into a trench through which it passes to the pump sump.

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No other admix combines with rotary mud so quickly.

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WILDCAT OPERATIONS IN OKLAHOMA

(Continued from Page 42)

HUGHES COUNTY

Wright et al's No. 1 Ott, SE SW Sec. 15-5-11 ..... Shut down 1,645 ft.
Irwin et al's No. 1 Jones, SE NW Sec. 30-5-10 ..... T. D. 4,775 ft.; Cromwell sand 4,760-68 ft.; water.

KAY COUNTY

Wilright Gas Co.'s No. 1 Wildegrube, NE SW Sec. 14-27-1 ..... Location.
Lewis et al's No. 1 Harris, SE NW Sec. 14-25-1 ..... Location.
Peters & Buckles' No. 1 Hayes, NW NE NW Sec. 24-28-3 ..... Drlg. 1,225 ft.
Mummert Drlg. Co. et al's No. 1 Cormick, C NW SE Sec. 9-27-2 ..... Shut down 570 ft.
Blackwell Oil & Gas Co.'s No. 1 Harshman, Sec. 2-26-1w.. Rig on ground.
Boucher Oil Co.'s No. 1 Jefferson, NE SW Sec. 32-26-1w.. Fishing 1,175 ft.

KINGFISHER COUNTY

Prairie and Slick's No. 1 Wright, C NW SW Sec. 23-15-5w ..... T. D. 6,890 ft.; plugged back to 5,738 ft.
Galt Brown's No. 1 Wolf, NW SE Sec. 6-16-7w ..... Drlg. 7,554 ft.

KIOWA COUNTY

Christian's No. 1 Jones, NE SE Sec. 8-7-18w ..... Rig.

LEFLORE COUNTY

Red Bank Oil Co.'s No. 1 fee, SE NW Sec. 23-9-24 ..... Wilcox 6,128-6,298 ft.; dry; plugged back to 5,426 ft.; comp. 5,401-5,550 ft.; 6,000,000 ft. gas.

LATTIMER COUNTY

P. English's No. 1 Unknown, NW SE Sec. 16-6-19 ..... Rig.
Mid-Western Oil & Gas' No. 1 Bullo, C E half SW Sec. 3-6-19 ..... Drlg. 1,300 ft.
LeFlore Oil Co.'s No. 1 McBee, NW cor. Sec. 3-7-21 ..... Drlg. 3,601 ft.
Mid-Western's No. 1 Morris, C NW SE Sec. 12-6-21 ..... Shut down 2,075 ft.; dry.
Limestone Oil & Gas Co.'s No. 1 Murray, NE cor. Sec. 25-5-18 ..... Shut down 2,765 ft.

LINCOLN COUNTY

Mote-Wheeler's No. 1 Stafford, NW NE Sec. 32-17-4 .... Rig.

LOGAN COUNTY

Slick and Ramsey's No. 1 Jones, SE NW Sec. 24-17-2w.... Drlg. Wilcox 5,735-43 ft.; water; shut down.
Eason Oil Co.'s No. 1 Young, C SW NE SW Sec. 34-17-4w. Sand 4,919-42 ft.; made 870 bbls. 21 hrs. and 485 bbls. the second 24 hours.

McINTOSH COUNTY

Patterson et al's No. 1 Smith, SW cor. NW SE Sec. 32-9-16 ..... Shut down 5,660 ft.

McLAIN COUNTY

Prairie's No. 1 Parkinson, SW NW Sec. 22-7-2w ..... Drlg. 5,710 ft.

MUSKOGEE COUNTY

Rebold's No. 1 Miller, SE NE NE Sec. 32-13-19 ..... Rig.
Sioux Oil Co.'s No. 1 Unknown, NW SE Sec. 21-11-19 .... Shut down 1,011 ft.

NOBLE COUNTY

Barnsdall's No. 1 Miksch, NW SW Sec. 12-21-1 ..... Drlg. 3,170 ft.

OKFUSKEE COUNTY

Henry Oil Co.'s No. 1 Harjo, Sec. 36-12-9 ..... Shut down 4,127-57 ft.; water; plugged back to 3,161-85 ft.
E. L. Robinson's No. 1 Rice, NW Sec. 2-10-9 ..... Location.
Shepard et al's No. 1 Neveas, SE NW SW Sec. 3-12-10 ... Shut down 3,690 ft.

OKLAHOMA COUNTY

L. C. Hivick's No. 1 Sunset Addition, NW SW NW Sec. 17-11-3w ..... Shut down 5,515 ft.
Mid-Kansas Oil & Gas Co.'s No. 1 Messer, SW cor. Sec. 32-14-3w ..... Wilcox 6,697-6,771 ft.; shot with 90 qts. and 140 qts.; made 2,627 bbls. 7 days.
Warr et al's No. 1 Castle, SW NW Sec. 20-11-3w ..... Drlg. 7,248 ft.
J. F. Cuniff, trustee's No. 1 Church Land, NE SW SE Sec. 17-12-4w ..... Shut down 6,700 ft.

OSAGE COUNTY

Millard & Stanley's No. 1, SE SW Sec. 4-28-7 ..... Drlg. 816 ft.

PAWNEE COUNTY

Rookstool's No. 1 Wylie, NW NE SW Sec. 6-20-5 ..... Drlg. 625 ft.
Sperry et al's No. 1 Mullrap, SE SW Sec. 2-22-5 ..... Drlg. 1,625 ft.
L. E. Wentz' No. 1 G. Lilly, SE SW NE Sec. 26-22-3 .... Drlg. 3,895 ft.
Cochran et al's No. 1 Green, NE cor. SW Sec. 15-23-5 .... Rig.

PITTSBURG COUNTY

C. Kennedy's No. 1 Travis, C SW NE Sec. 15-7-14 ..... Rig.
C. Canady's No. 1 Jones, NW cor. Sec. 14-8-14 ..... Rig.

ROGER MILLS COUNTY

Ute Oil Co.'s No. 1 Williams, C SW Sec. 23-12-24w ..... Drlg. 2,250 ft.
L. C. Hivick's No. 1 Davis, C NW NE Sec. 4-11-26w .... Shut down 2,905 ft.

SEMINOLE COUNTY

Sunray Oil Co.'s No. 1 Sunday, NW SE Sec. 35-5-5 ..... Location.

WASHITA COUNTY

Cooper & Terhune's No. 1 Blocker, NW cor. Sec. 29-8-19w. Shut down 130 ft.
Burns & Prince's No. 1 Deck, SW cor. Sec. 21-8-18 ..... Rig.
Petroleum Holdings, Inc.'s No. 1 Musie, NW cor. Sec. 10-9-20w ..... Shut down 280 ft.

WOODWARD COUNTY

Farrond et al's No. 1 Unknown, SE cor. SW SE Sec. 2-22-17w ..... Shut down 1,387 ft.
Prairie Oil & Gas Co. et al's No. 1 Wilbur, NE cor. NW Sec. 22-23-17w ..... Shut down 7,445 ft.

OKLAHOMA PANHANDLE

TEXAS COUNTY

Three Way Oil Co.'s No. 1 Crane, SW NW Sec. 11-1-1S ..... Shut down 4,425 ft.
Palo Alto Oil Co.'s No. 1 Graves, NE SW SW Sec. 23-2-1Se ..... Spudded; shut down.

SOUTHERN OKLAHOMA

ATOKA COUNTY

Bryant et al's No. 1 Southern Trust, C SW SW Sec. 3-1s-14 ..... Drlg. 715 ft.
Stewart-Howland's No. 1 Howard, NW SE NW Sec. 6-4s-11 ..... Shut down 100 ft.
Brookshire's No. 1 R. W. Rowland, NW NE SE Sec. 18-3s-10 ..... Shut down 400 ft.

BRYAN COUNTY

Bryan County Oil's No. 1 Childs, NW SE SW Sec. 7-7-10.. Drlg. 500 ft.
Bush et al's No. 1 Commerce Trust, NE cor. Sec. 35-6s-9 ..... Shut down 525 ft.
Johnson et al's No. 1 Ussery, SE SW SE Sec. 14-16s-7e .. Shut down 485 ft.
Marshall's No. 2 Fee, C SW NW Sec. 26-5s-7 ..... Shut down; 6-in. csg. 265 ft.

CARTER COUNTY

Campen-Lasater Co.'s No. 1 Anderson, NE cor. SE NE SE Sec. 32-4s-2 ..... Cleaning out 2,590 ft.

COTTON COUNTY

Gilbert-Lowery's No. 1 Harneg, C SE SE Sec. 4-2S-11w .. Rig.

JEFFERSON COUNTY

J. H. Brown et al's No. 1 Norlett, SW NW NE Sec. 35-7s-8w ..... Drlg. 1,040 ft.
Mutual Oil Co.'s No. 1 Sharp, SE NW Sec. 2-5s-8w ..... Shut down 805 ft.

LOVE COUNTY

G. Pace et al's No. 1 Burkhart, NE NW Sec. 13-8s-1 .... Rig.
Batson & Sterrette's No. 1 Dillard, SE NE NW Sec. 25-6s-2 ..... Rig.
Hobbs et al's No. 1 Roberts, NE cor. SW Sec. 20-6s-3w... Shut down 3,130 ft.

MARSHALL COUNTY

D. H. Curry's No. 1 Ward, NE SE SW Sec. 15-5s-6 ..... Drlg. 1,275 ft.
McCrory et al's No. 1 Adams, NE SW SE Sec. 31-7s-6 .... Drlg. 490 ft.
Akers et al's No. 1 Spicer, SW SE SE Sec. 23-5s-7e ..... Shut down 370 ft.

McCURTAIN COUNTY

Milton et al's No. 1 Vase, SW NW Sec. 26-6s-21 ..... Shut down 2,287 ft.

STEPHENS COUNTY

Obermyer et al's No. 1 Skelton, NE SW SW Sec. 32-1S-7w ..... Shut down 1,060 ft.

Natural Gas Industry Developments

LOS ANGELES COMPANY PROTESTS RATE CUT

LOS ANGELES, Calif., Dec. 13.—Thirteen reasons are presented why the Railroad Commission should not have reduced the gas rates of the Los Angeles Gas & Electric Corp. $1,300,000 a year as the commission did November 24, according to a petition for rehearing filed by the company. One of the reasons is a reversal on the part of the commission in which it denies the justice of its own ruling of less than a year previous and places itself in the position of arriving at two different conclusions from the same facts. The argument follows:

"This proceeding was instituted by the commission on its own motion as one of a series of investigations into the rates of various utilities in the State which, from data on file with the commission, apparently were realizing a better net earning than was deemed reasonable. It was not initiated by the complaint of any consumer or public body, nor does the record contain any showing of any criticism of the rates of petitioner by any consumer.

"The order instituting the proceeding was made on October 1, 1929, less than a year after the committee had made an order, effective December 1, 1928, prescribing 'just and reasonable' rates to be charged by petitioner (which rates are the rates now in effect), in which order the commission stated 'it is apparent from the fact that gas sales and revenue fluctuate in accordance with variations of temperature, that the rate of return for any one year may be either above or below what is considered adequate. Recognizing this fact, and giving consideration to the past few years of somewhat higher than normal temperature, we will fix rates that will yield slightly in excess of 7½ per cent over a long period of years, and which can be safely relied upon to give 7½ per cent return during the next two or three years.'"

Having rendered this decision, the petition points out, the commission then

(Continued on Page 175)

OLEAN GAS SYSTEM

OLEAN, N. Y., Dec. 13.—The Keystone Gas Company is installing a system of gas lines at Knapp Creek under the direction of Charles D. Wernet, district manager, who is completing a hook-up of the supply lines entering Olean from East Aurora, the Dundee Field beyond Bolivar and from the Bradford Field. This work will result in a complete supply of gas for the city of Olean from any one of these lines in the event of an accident to either or both the others.

ASKS GREAT FALLS FRANCHISE

Municipalities Gas Corp. of Minneapolis has applied to the city council of Great Falls, Mont., for a franchise for the operation and installation of a system for the sale, transportation and distribution of gas, natural or otherwise. The company said it is primarily interested in space heating on a large scale. It proposes to furnish gas for domestic use at 65 cents per the first 1,000 feet, while the present rate is 67½ cents.

VOTE ON SALE OF PLANT

LOS ANGELES, Calif., Dec. 13.—Voters of Coalinga will go to the polls January 13 to decide whether the municipal gas plant shall be sold to the West Side Gas Co. for $32,000. Although the city trustees were compelled to call the election, three members who are opposed to the sale accepted bids from a local concern for 5,000 feet of 3-inch gas pipe with which to make extensions and betterments in the distributing system.

PRESIDENT REESER IN TART REPLY TO RAILROAD PIPE LINE SCHEME

NEW YORK, Dec. 15.—Legislation designed to compel oil companies to divest themselves of their investments in pipe lines, proposed by the Association of Railway Executives, has drawn from the petroleum industry a declaration that such action would put an increased burden upon the consumer of petroleum products and would be of no benefit to the railroads.

In a letter to R. H. Aishton, president of Association of Railway Executives, E. B. Reeser, president of the American Petroleum Institute, said:

"The decision by the Association of Railway Executives to appeal to Congress for legislation to compel oil companies to divest themselves of their investment in pipe lines appears to have been reached without benefit of a knowledge of the facts.

"The petroleum industry is conversant, as are the railway executives, with the extent of the business depression. It is sympathetic with any proper plan for increasing railroad earnings; it believes in co-operation for the common good; and is anxious to help remedy unsatisfactory conditions. The railroads' proposal does not point in this direction. It goes entirely outside of the question of helping the carriers, to indicate how another industry may be injured.

"In brief, it appears that the railroads are trying to derail progress, and to force through by legislation an uneconomic interruption in the movement of petroleum and allied products. No material gain will accrue to anyone if such legislation be obtained. It is granted that the enforced separation of pipe lines would injure the oil companies.

"The procedure followed when the Government compelled the separation of coal properties from the carriers owning them would be repeated. The pipe lines would not go to the railroads, which cannot operate them, but would be handed over to stockholders of the oil companies, the business to be continued then by independent pipe line companies such as it is conducted today. But there is no parallel between the situation that existed when railroads owned coal mines along their right of way, and the relationship between the oil and gas companies and their pipe lines. The carriers were engaged primarily in the business of furnishing transportation, and an important source of revenue was the shipment of coal over their lines. Except for the relatively small amount used to fuel the locomotives, the rail-owned coal was sold in competition with that produced by other mines which had no railroad tie-up.

"In the case of the oil and gas companies, their business is the production, purchase, storage, processing, and sale of oil and natural gas. Despite the technical status of many pipe lines as common carriers, the oil companies are not in the transportation business, as such, but only so far as it has been necessary to lay underground lines. Gathering lines are laid into fields where oil and gas are produced and trunk lines to the point at which the owner of the raw material has facilities for its refining and sale. Essentially, all pipe lines are and always have been plant facilities—mere adjuncts of the primary business of their owners. To infer that it might be possible to compel abandonment of pipe lines, and to force the movement

(Continued on Page 175)

NEW SHIPPING METHOD FOR EXPORTING HELIUM

Utilization of cheap water transportation probably will solve the economic problem of shipping helium to foreign countries for use in inflating airships, says Lieut. Comdr. Charles E. Rosendahl, lighter-than-air specialist of the Bureau of Aeronautics, Department of the Navy.

"If helium is going to be necessary in Europe," the former commander of the Los Angeles declared, "there will be found a way to get it over there in an economical manner."

Construction of special helium-carrying transport ships which could be filled with helium under pressure is the logical solution to the problem of expensive transportation, he suggested.

Commander Rosendahl said that although shipping in steel cylinders, the method used domestically by the Army and Navy, would involve considerable expense, there is no doubt that successful commercial airships of the future will have to be inflated with helium.

He pointed out that the Los Angeles was built in Germany, flown across the Atlantic while inflated with hydrogen, and reinflated in this country with the nonexplosive, noninflammable helium. It might be economically practicable to fly German ships to this country on initial trips to avoid the expense of shipping helium abroad, he said.

Present standards of airship performance are being revised because of the world-wide acceptance of the fact that helium is almost absolutely necessary for safe transportation. While the lifting power of hydrogen may be somewhat greater, the increased safety and reliability of helium, he said, had led to a change of opinion. Capabilities of airships are figured now on the basis of helium-filled ships.

"There will be no great difficulty in working out means of shipping helium once the demand becomes sufficiently great," he declared. "Transportation by tramp steamers is cheap, and a new method of shipping, different from the use of heavy steel cylinders, can be worked out."

MUSKEGON GOING BACK TO MANUFACTURED GAS

Domestic consumers of the Muskegon Gas Co. will be burning manufactured gas entirely instead of natural gas by January 1 as a result of action taken by the city commission Friday, December 5. Authorization to start the change back to artificial gas was voted by the commission when it was indicated that the Muskegon Deep Well Syndicate's No. 5 Herman Heinz well, the first deep test in the proved Muskegon Field, was to be unsuccessful in the attack in the attempt to find new gas production in the Niagara formation.

Rapid decline of available natural gas in the Traverse and Dundee formations and results of state survey showing that only 225,000 feet a day additional might be obtained from the Laketon Township area led to the city's decision.

Industrial consumers will continue to get natural gas from the West Michigan Consumers Co., the Muskegon Pipe Line Co. and the Continental Motors Corp. gas lines as long as the dwindling production lasts. Less than 2,000,000 feet a day is being run by these three lines at present and it is estimated that production is dropping at the rate of from 300,000 to 500,000 feet a month.

SECOND TIOGA WELL NEARING PRODUCTION

WELLSBORO, Pa., Dec. 13.—The North Penn Gas Co.'s second test in Tioga County, No. 1, on the John Kemp farm, is at a depth of over 3,350 feet. The discovery well, No. 1, on the Palmer farm, 200 feet distant, struck a large gas flow at 4,000 feet.

The well being drilled on the William Bostwick farm, 1½ miles north of the Palmer farm, under the direction of J. E. Trainer, is down 250 feet but is caving badly. Two weeks ago the work was interrupted at a depth of 70 feet because of a fishing job due to the parting of the cable, which permitted tools to drop into the well.

On the Josiah Howe farm in Farmington, 2,500 feet from the discovery well, operations conducted by the Peoples Natural Gas Co., a subsidiary of the Standard Oil Co. of New Jersey, have progressed with great rapidity and with the drilling now at a depth of 800 feet. The well being drilled on the Shoemaker farm in East Lawrence by the same company is at a depth of 250 feet. At the third location on the Frank A. Ackley farm near Sabinsville rigging up has begun. On the E. W. Close farm southwest of the Palmer well, Benedum-Trees have a well which has reached a depth of 420 feet. The well on the Ben Meeker farm in Tioga Township, being developed by S. J. Brendel and others is down 650 feet. Spudding is being done by the Penn United Gas Co. on the Colegrove farm in Lawrence Township, for a company in which Wellsboro capital is interested.

Benedum-Trees are drilling at a depth of 2,400 feet near Addison, Steuben County, New York, and the Lycoming Natural Gas Co. operating through Fenner-Taft has made a location near Woodhull, N. Y., not far from Addison.

A check up at the office of the Tioga County register and recorder shows that more than 2,400 leases have been registered to date.

GAS LINE EXTENSIONS PLANNED IN MONTANA

CASPER, Wyo., Dec. 13.—Big Timber, a town in Sweetgrass County, Montana, with a population of about 1,500, is shortly to vote on permitting franchises for three different firms to supply the town with gas. It appears that all three firms will be given franchises and then there will probably be a race in the laying of pipe lines to supply the town.

A gas line to Lewistown, Fergus County, Montana, from the new strike on the Armels Dome near that city, is planned to be laid next spring. The Sabine Construction Co. will lay the line and its engineer, C. C. Robbins, is now on the ground. The California Co. found gas here several years ago and after drilling several deep tests, plugged and abandoned the wells. The new strike has a well estimated between 8,000,000 and 10,000,000 feet daily. Lewistown has a population of about 8,000 people. The Capital Gas Co. has the franchise to serve Lewistown with gas. The new well is about 5 miles from the city.

At Havre, another war is looming. A. H. Perkins and associates have secured a franchise for a new pipe line through Hill County and the Great Northern Utilities Co., has also asked for a franchise and proposes to lay a pipe line from its wells in the Sweetgrass area. Mr. Perkins has no gas as yet, but proposes to drill wells south of Chester and also on the Kremlin Dome where he has leases. Two wells have been drilled on the Kremlin Dome and both were gas wells.

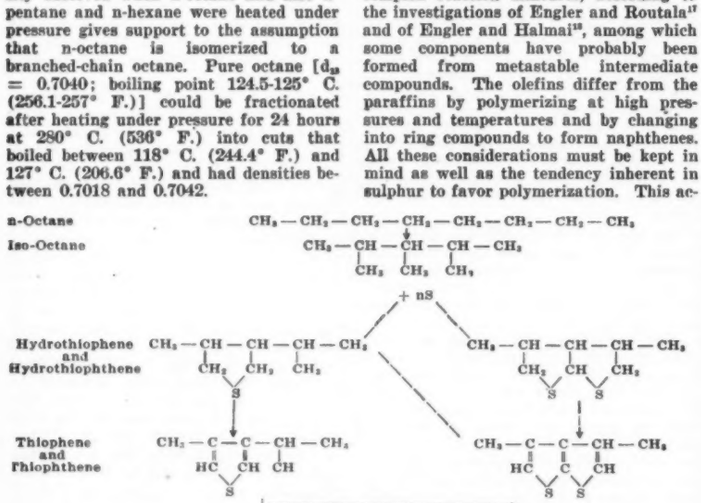
ORIGIN AND REFINING OF SULPHUR PETROLEUMS

(Continued from Page 32)

thiophene derivative was not converted into the thiophthene derivative; the constitution of the thiophene derivative could be proved by the dibromide. Besides, a well-crystallized picrate was made. Moreover, the assumption that the hydrothiophene derivative is able to close the second ring under the influence of the sulphur is more probable than the view held by Scheibler,[10] that a thiophene derivative was formed from a thiophthene derivative by fission of the ring. No statements on such a closing of a ring in the thiophene or splitting of a ring in the thiophthene series could be found in the literature. At a temperature of 280° C. (536° F.), splitting is improbable.

Change in Boiling Point

The change in boiling point and density observed when n-octane and also n-pentane and n-hexane were heated under pressure gives support to the assumption that n-octane is isomerized to a branched-chain octane. Pure octane [d_{20} = 0.7040; boiling point 124.5-125° C. (256.1-257° F.)] could be fractionated after heating under pressure for 24 hours at 280° C. (536° F.) into cuts that boiled between 118° C. (244.4° F.) and 127° C. (206.6° F.) and had densities between 0.7018 and 0.7042.



In spite of repeated references[11] to this striking observation, similar results have not been reported by others. Further investigations in this field are in progress.

This first synthesis of a thiophene derivative starting from a paraffin hydrocarbon explains the formation of the thiophene derivatives that were separated from a cracked naphtha by McKittrick. The author obtained small quantities of the two cyclic sulphur compounds $C_5H_{12}S$ and $C_5H_8S_2$ from (a) caprylene (methyl n-amylethylene) while (b) octylene-1 did not yield these compounds when heated under pressure with sulphur. In both cases, (a) and (b), very complex reactions occur. It should be emphasized that asphalt is the final product in both series of experiments as well as in experiments with hexylene and hexadecylene, as will be shown in the summary.[12]

Origin of Complications

The complications occurring during the action of sulphur on the olefins may arise from the primary or from secondary reactions:

Reaction of the olefin with sulphur.

Polymerization of the olefin.

Reaction of the polymers with sulphur.

Polymerization of the sulphur compounds.

Condensation of the olefin with mercaptan and, finally, induced reactions of various kinds.

It seems fitting to begin with the polymerization of the monomolecular hydrocarbons because the past few years have brought a large number of new researches in this field. The action of sulphuric acid on olefins serves usually as the starting point for the study of polymerization. Under the influence of this acid, secondary octyl alcohol yields the polymers $C_{16}H_{32}$ and $C_{24}H_{48}$, as Brooks and Humphrey[13] were able to show. These compounds are more stable than octylene, from which they were formed, and contain only one double bond. It is impossible to present here a theoretical discussion of the reactions that precede polymerization, the formation of alkyl sulphuric acids and esters, the removal of hydroxyl groups, and the shifting of double bonds.[14] The work of Morrell,[15] Brooks and Humphrey,[13] Joubert and Norris[16] is cited. The boiling points of the polymers are much higher than those of the simple olefins, as is to be expected. For example, the dipolymer of hexylene boils between 190-200° C. (374-392° F.); the dipolymer of isoheptylene, between 220-224° C. (428-435.2° F.); and a mixture of dipolymers from octylene-1 and octylene-2, between 275-285° C. (527-545° F.).

Complete Results Caused

The heating of olefins under pressure without the addition of sulphur leads to complex reaction mixtures, according to the investigations of Engler and Routala[17] and of Engler and Halmai[18], among which some components have probably been formed from metastable intermediate compounds. The olefins differ from the paraffins by polymerizing at high pressures and temperatures and by changing into ring compounds to form naphthenes. All these considerations must be kept in mind as well as the tendency inherent in sulphur to favor polymerization. This action is seen in the formation of trithioacetaldehyde $(CH_3CHS)_3$[19], and more clearly in the production of the thioacetone compounds. Among the incidents occurring in the investigation of this field, it is reported that every experiment that Baumann and Fromm made stirred up everyone in the neighborhood of the laboratory on account of the unbearable odor, and brought forth a storm of complaints. The isolation and investigation of these compounds had to be abandoned at that time. There were isolated later dimolecular thioacetone $(C_3H_6S)_2$ or $C_6H_{12}S_2$, which reacts as a sulphide; $[(CH_3)_4C_2S_2]_n$, the dipolymer of dithioacetone; trithioacetone $(CH_3)_6C_3S_3$ or $C_9H_{18}S_3$, and tetrathiopentone, $C_{15}H_{30}S_5$, besides the monomolecular thioacetone.

In accompanying tabular summary for sulphur compounds have been arranged that were obtained by the action of sulphur on hexylene (methyl propylethylene), on the octylenes, (a) methyl-n-amyl-ethylene, made from methylhexylcarbinol, on (b) octene-1 and on hexadecylene. The basis of the attempt to arrange the compounds in five groups was to classify the compounds of Group 1 as mercaptans, R SH, Group 2, as sulphides, R_2S, Group 3 as R_2S_2, Group 4 as R_2S_3, and Group 5 as asphalts of the composition $(C_nH_{2n-2})_x$ to $(C_nH_{2n-8}S)_x$. (In order to save space, the thiophene and thiophthene derivatives were placed in Group 1 and Group 2.)

Difficult to Classify

It is difficult to arrange these sulphur products in known classes of sulphur compounds. If one has the substances in a pure form, the quantities left after analysis are not sufficient for many experiments, and the unpleasant odor is troublesome, especially for other workers in the same laboratory. Finally, none of the substances is obtaintable for making comparisons. Purification by means of mercury salts that form double compounds is not possible because most of the olefins also present form similar compounds. A mixture nearly like the original is formed, therefore, after the decomposition of the double compounds.

The compounds of the type RSH can be regarded as mercaptans because by using mercuric oxide mercaptides are formed. This reaction points to the presence of the acidic SH radical. The compounds of the type R_2S did not yield addition products with methyl iodide, even with prolonged heating. At lower temperatures they do not react and at higher temperatures they decompose. Even careful treatment with bromine always causes copious evolution of hydrogen bromide In general, these products behave very much like the sulphur compounds from acid sludge, characterized by McKittrick.[20] Compounds of the type R_2S_2 are possibly addition products of unsaturated sulphides, similar to those obtained by Posner[21] from mercaptans and olefins, particularly from hexylene, without the necessity of adding sulphuric acid or a condensing agent. The known reactions of disulphides fail for the products of the type R_2S_3. A compound of the type R_2S_3 could be made only from hexylene. The higher homologs all undergo decomposition and no conclusions could be drawn from a study of the end products.

J. C. Hackford[22] assumes that he has isolated dimercaptans from a Mexican oil, which when heated to 165° C. (329° F.) lost exactly half their sulphur and retained the rest as thiophane derivatives. It should also be remembered that McKittrick is inclined to ascribe a cyclic structure to his sulphur compounds from California oil. How extensively, for example, substituted tetra-, penta-, or hexamethylene sulphides[23] are able to unite through their side chains to form new sulphides has not been investigated.

Experiments in Naphthene Series

The author's experiments in the naphthene series[24] have shown that sulphur can enter the cyclohexane ring as well as the side chains. In the first instance, thiophenol is formed, which is converted into phenylsulphide. Analogously, thiocresol and thioxylenol are obtained from methyl and dimethyl cyclohexane. It is conceivable that the cyclohexane mercaptan prepared by Borsche and Lange[25] or even cyclohexylsulphide[26] is formed as an intermediate product, but neither dicyclohexyl nor diphenyl[27] could be found. It was also impossible to identify dibenzyl, but m-m-dimethyl dibenzyl was isolated from the products made from m-m-dimethyl cyclohexane. Sulphur was able, therefore, to unite side chains by dehydrogenating the ring, but it was split out of the product again as hydrogen sulphide.

After it has been shown that the paraffins are incapable of forming asphalts, the same behavior would be expected from the naphthenes as from saturated hydrocarbons. It must be recognized, however, that under the action of sulphur, partially dehydrogenated, that is, unsaturated hydrocarbons, the naphthylenes and naphthylidenes, must be formed as intermediate products. In fact, the naphthenes like the olefins are able to form asphalts. Not all dienes, however, seem to react in the same way. For example, dicyclopentadiene when heated with sulphur to 180-185° C. (356-365° F.) underwent reaction, as was shown by the formation of hydrogen sulphide. There was formed, however, only a dark brown, difficulty, rather than easily soluble, viscous mixture that was purified by repeated solution and precipitation. Finally, a loose light brown substance was precipitated that corresponds in analysis to the formula $(C_{12}H_{12}S)_x$. It reacts with bromine to form hydrogen bromide but does not have the properties of asphalt.

Exclusive Tar Formers

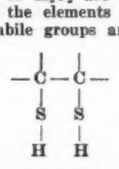
According to Brooks and Humphrey[28], the diolefins rather than the simple olefins are considered the exclusive tar formers on treatment with sulphuric acid. Perhaps the peculiar behavior of dicyclopentadiene with sulphur is attributable less to its ring structure than to the fact that it is transformed more rapidly upon heating to a highly polymerized product than into derivatives of sulphur. Only when the sulphur is at the right place at the right time can it form the bridge between two structures. Then mixtures arise which Staudinger[29] designates as polymer homologs, both sulphur-free and containing sulphur.

For comparison, the process of vulcanization may be cited, in which sulphur likewise meets the polymer, which, however, has reached a stable condition. By maintaining definite conditions, Hinrichsen and Kindscher[30] were able to isolate a product containing 32 per cent of sulphur, corresponding to the formula $C_{12}H_{18}S_2$. The purification of this brown powder can be effected only by means of acetone, because even alcoholic sodium hydroxide removes sulphur, the sulphur content falling to 26 per cent. Similar experiments were then undertaken with caoutchouc and sulphur monochloride, in the repetition of which Meyer and Mark[31] obtained a product having the formula $C_{12}H_{16}SCl_2$. From their result they concluded that each two double bonds were bound together by sulphur acting as a bridge, a conclusion that Staudinger[32] had already made probable.

The further explanations of the process of vulcanization by Meyer and Mark can be carried over to a certain extent to the formation of asphalt. Those authors say: ". . . During the action of sulphur monochloride on caoutchouc, the reaction takes place first at the surface of the micelles; a part of the sulphur chloride will certainly be used to form bridges between double bonds of a single molecule, but another part will serve to unite double bonds of neighboring micelles. There is furnished by this action a firm bonding, as it were a linking in chains at single points."

Enters in Bridging Linkage

Sulphur probably enters in a bridging linkage also within the olefin molecule, as was shown with octylene, which can in fact be recognized in the formation of thiophene. Nevertheless, the assumption seems natural that when we disregard the phenomena of autoxidation, formation of peroxides, etc., in our case two SH radicals enter the molecule, in a manner analogous to the entrance of hydroxyl groups during the oxidation of olefins as when glycol is formed from ethylene at the double bond. In the same way that the elements of H_2O_2 are fixed at the double bond, the elements of H_2S_2 can be fixed. Labile groups are formed:



from which an unsaturated mercaptan is produced by the loss of H + SH. In such an unsaturated mercaptan under the conditions of the reaction a migratory double bond can be imagined to exist until a stable condition is brought about by the formation of a sulphide from two such molecules by the loss of H + SH. This unsaturated sulphide can react with

[10] Scheibler, Ber. 49, II, 2,595 (1916).
[11] Friedmann, Brenn Chem. 8, 257 (1927), "Verfluessigung der Kohle," 1928, S. 19.
[12] Friedmann, Ber. 49, 1,551 (1916).
[13] Brooks and Humphrey, J. Amer. Chem. Soc. 40, 822 (1918).
[14] Howes, J., Inst. Petr. Techn., Vol. 16, Nr. 79, Feb., 1930, Page 54.
[15] Morrell, Ind. Eng. Chem. 19, 794 (1927).
[16] Joubert and Norris, J., Amer. Chem. Soc. 49, 873 (1927), J. Soc. Chem. Ind. 48, 707, (1929).
[17] Engler and Routala, Diss. Karlsruhe (1909).
[18] Engler and Halmai, Diss. Karlsruhe (1909).
[19] Victor Meyer, Bd. I, 748.
[20] McKittrick, Ind. Eng. Chem. 21, 585 (1929).
[21] Posner, Ber. 36, 636 (1903).
[22] J. C. Hackford, J. Inst. Petr. Techn. 12, 136 (1926).
[23] Grischkewitsch and Trochimovski, J. Chem. Soc. (London) 112, 155A (1917).
[24] Friedmann, "Petroleum," 11, Nr. 13 (1916).
[25] Borsche and Lange, Ber. 39, 812 (1906).
[26] Malihe, Chem. Ztg., 34, 1,202.
[27] Br. Chem. 8, Nr. 16, 257 (1927).
[28] Brooks and Humphrey, J. Amer. Chem. Soc. 36, 822 (1914).
[29] Staudinger, Ztschr. f. angew. Chem. 42, 37 (1928).
[30] Hinrichsen and Kindscher, Ber. 46, II, 1,291 (1913).
[31] Kurt H. Meyer and H. Mark, Ber. 61, 1,947 (1928).
[32] Staudinger and Fritschi, Helv. Chim. Acta 5, 793 (1922).

a mercaptan to form a compound of the type R_2S_2. As has been said, it was possible to obtain type R_2S_2 only from hexylene. With increasing molecular weight, the natural decomposition occurs, which is favored more and more by the gradual impoverishment in hydrogen. Further conjectures are unnecessary about the intermediate product that may have been involved in the action of sulphur on the olefins or their polymers.

Further Explanation Needed

The course of the reaction needs certain further explanation, but the end product between unsaturated hydrocarbons and sulphur can be accepted as asphalt on the basis of its properties, especially since the average analysis agrees with that of petroleum asphalt. Scheibler[30] has also discussed the formation of asphalt in his account of the second investigation on ichthyol oils, which he conceives as a process of polymerization and dehydrogenation, referring to the views of Kayser[31], published 50 years ago but worthy of study today.

In spite of this or that variation (perhaps only apparent) requiring futher clarification, the following explanation, based upon the synthesis of an asphalt from the pure hydrocarbon, of what classes of hydrocarbons are to be regarded as asphalt formers, can be maintained: Paraffin hydrocarbons are not capable of forming asphalt. Under the influence of sulphur, the olefins form a series of asphalts and each olefin can form an olefin asphalt. Further, the naphthenes form other series of asphalts. Each naphthene, naphthylene and naphthylidene belonging to the same series can form the same asphalt, naphthene asphalt. Finally, the terpenes form terpene asphalt, which is of less interest since it has always been questionable whether terpenes are present in crude oil. Experiments have shown that sulphur reacts energetically with pinene with evolution of hydrogen sulphide. Without undertaking a description of the sulphur derivative and the intermediate products partly free from sulphur, which can be distilled undecomposed as a reddish brown rosin oil that becomes gradually heavier (up to D_{20} 0.993), it can be said of the product—and only this is of interest here—that it contains nearly all the sulphur bound to carbon. If the product is distilled carefully in vacuo, there remains as residue a deep brownish black product of pronounced asphaltic character, in regard to solubility, penetration and ductility.

Analyses of Synthetic Asphalts

In the following table analyses of synthetic asphalts are presented, both from distillation residues and from products of synthetic reactions. The formulas supplied show only the results of the analysis, since nothing can be said at present about the molecular weights. Neither can the formation of asphalt be represented by a reaction equation without doing violence to the process.

ASPHALTS, OR REACTION PRODUCTS AND RESIDUES

Originating from the hydrocarbons—	Character—	Composition C	H	S
Hexylene	Asphalt, hard	77 34	5 11	17 01
Octylene (a)	Asphalt, rather hard	76 4	7.3	16.6
Octylene (b)	Asphalt, hard	76.92	6 64	16 86
Hexadecylene	Asphalt, soft	78.8	4.75	16.4
Average		77 3	6 0	16 7
Petroleum asphalt (according to Graefe)	Hard	78.0	6 5	16.5
a-Octane	Coke-like residue; extracted	21.72	2.18	76.10
a-Octane	Then heated to 300° C. (572° F.)	34 6	2.04	62 3
·Methyl naphthalene—$C_{22}H_{16}S_4$	Reaction product, hard	64 0	3 83	32.16
Indene—$C_{26}H_{20}S_4$	Reaction product, hard	77.63	4.34	18.03
Indene, the above product precipitated with petroleum ether	$(C_{18}H_{20}S)_X$	88.64	4.48	7.02
Pinene—$(C_{20}H_{32}S)_X$	Asphaitic, ductile	79 81	9 24	10.95
Dicyclopentadiene $(C_{10}H_{12}S)_X$	Tarry	72.88	7.14	19.98
Styrol: No tar formed among the products isolated	Diphenyl butane $C_{16}H_{18}$, m. p. 123° C. (253.4° F.) -Diphenyl thiophene, $C_{16}H_{12}S$, m. p. 119° C. (246.2° F.)			
Dimethyl cyclohexane	Asphalt, hard	73 48	5.10	21.48

Burrell's View

In spite of this fact, the opinion expressed by Burrell on the progress to date in our knowledge about asphalt cannot be accepted. He considers it of no particular significance from the chemical point of view whether the components of the asphaltic portion of an oil be arranged into groups on the basis of their solubilities, whether they can be designated as oxygen-containing or sulphur-containing components, and whether some are unsaturated cyclic compounds, and some saturated polycyclic heterocyclic compounds such as asphaltenes, resins, etc. Burrell says[34]: "The action of oxygen, chlorine and other agents on these substances has indeed been investigated, but the investigations have not led to their identification." The chemistry of asphalt is admittedly in the initial stage, but there is no reason to ignore the investigations of Marcusson[35], for example, from which a great part of the classification has originated.

After Marcusson[36] had succeeded in separating the resinous and asphaltic substances of petroleum and asphalt into fusible asphaltenes, which are insoluble in petroleum ether, fusible soluble neutral petroleum resins and asphaltogenic acids or their anhydrides, Sakhanov[37] settled the question about the way in which these substances are dissolved in crude oil and in petroleum products: The asphaltenes are completely soluble, with swelling, in melted petroleum resins and in very heavy lubricating oils. They form colloidal solutions.

Depends on Solvent

The condition of the asphaltenes in crude oils and petroleum products depends above all else upon the constituents of the oil, that is, upon the solvent. If paraffin and naphthene hydrocarbons predominate, the asphaltenes are not soluble but form coarse suspensions; if aromatic hydrocarbons or petroleum resins are the chief constituents, the asphaltenes form more or less finely dispersed colloidal solutions. This explains why the content of asphaltenes is very small in light crude oils and light products of petroleum, with the result that the color is light. Only in heavy residuum and in resinous crude oils, which are almost always dark in color, is the content of asphaltenes considerable (up to 10 per cent), because these oils contain much resin. The neutral petroleum resins, like the hydrocarbons, present a continuous series of compounds which are formed by the oxidation of various petroleum fractions (in part, sulphur linkages). They are completely soluble, forming true solutions rather than colloidal. The coloring power of the neutral resins increases with increasing gravity of the petroleum fractions but is considerably inferior to that of the asphaltenes.

Under the action of oxygen the neutral petroleum resins change to asphaltenes, which are not stable substances, changing into other colloidal modifications, the carbenes and carboids. The asphaltenes adsorb large proportions of petroleum resins, which in turn change under the action of sulphur into asphaltenes or carbenes and carboids.

In connection with this discussion it should be clear that oxygen-containing modifications of asphalt[38] occur, even though less frequently; examples are the manjac of the Barbadoes, having a composition of C 81.18 per cent, H 8.43 per cent and O 10.39 per cent, low-sulphur Caucasion asphalt with 0.89 per cent of sulphur and Nigerian asphalt with the composition: C 80.48 per cent; H 9.29 per cent; S 1.50 per cent; N 0.68 per cent and O 8.05 per cent. The factors involved in the formation of these asphalts are to be considered the same as for blown asphalts, viz., that asphaltogenic acids are intermediate products.

Formation of Natural Asphalts

If we consider, in connection with the colloidal explanation above, the synthetic asphalts produced by the action of sulphur on unsaturated hydrocarbons we can draw conclusion from the method of their formation about the formation of natural asphalts. We can say that asphalts are colloidal solutions of hydrocarbons of high sulphur content in hydrocarbons of lower sulphur content. The latter are present in the beginning as petroleum resins, that is, sulphur-free hydrocarbons. Whether or not the petroleum resins are to be considered as polymerized unsaturated hydrocarbons, need not be decided, since they change under the influence of sulphur or of oxygen into asphaltenes. First, the dissolved, then the adsorbed resins are changed to asphaltenes, which are black sulphur derivatives of hydrocarbons. With progressive dehydrogenation the asphaltenes are changed to carbenes and carboids which remain in colloidal solution.

In agreement with the views presented here on the formation of asphalt is the fact that no olefins have been found in crude oils — disregarding a few exceptions. Olefins are formed, according to Burrell, only during the processing of crude oil. The olefins of the original oil had an opportunity to undergo reaction under the favorable conditions of pressure, temperature and time obtaining and the simultaneous presence of sulphur or substances that react like sulphur. The reaction products are the typical constituents of asphaltic oils. If paraffin hydrocarbons predominate in a petroleum, asphalt does not form, except when at the same time sufficient proportions of naphthene hydrocarbons are present to cause its formation. A naphthenic crude oil, in fact, is only more or less an asphalt-base petroleum; paraffinic crude oils are only up to a certain degree nonasphaltic.

[30]Graefe, Kohler-Graefe, "Asphalt" (1913), Page 35, 46-47.

[31]Kayser, "Unters. ueber natuerl. Asphalte," Nurnberg, 1,878.

[34]Burrell, The Oil and Gas Journal, July 12, 1928, Page 176.

[35]Marcusson, Chem.-Ztg. Nr. 76, 813 (1914); No. 77, 822 (1914), 250 (1915).

[36]Marcusson, "Die naturlichen und kunstlichen Asphalte," Leipzig, 1924.

[37]Sakhanov, "Petroleum," 1,441 (1925), 1,618 (1927).

PLAN 400-MILE GAS LINE, WYOMING TO NEBRASKA

(Continued from Page 68)

tional gas horizons and is now drilling to the lower formations. The structure has a known closure of 1,300 feet. While the Producers & Refiners controls most of the acreage, The Texas Company and several other concerns have holdings. The Muskrat Field is a more recent discovery and the first well drilled in last year had an initial production of 70,000,000 feet a day from the Frontier. The Producers & Refiners is now drilling a deep test through the Frontier and has done considerable shallow drilling to work out the structure. The Producers & Refiners also has a large gas reserve at Mahoney Dome in Carbon County with a pipe line to Casper with a capacity of 40,000,000 feet a day. It supplies the refineries at Casper, but the entire capacity of the line is not utilized at present. While this operation is a possible reserve it needed, it is not included in the present plans.

The New York Oil Co. at present is a producer and distributor of natural gas, supplying Casper, Evansville, Glenrock, Hudson, Lander, Mills, Riverton and Rock Springs. It has gas purchase contracts on 6,548 acres in Sand Draw. 800 acres in the Baxter Basin gas field and 2,240 acres on the Boone Dome. It operates a gasoline absorption plant, a purification plant and conpressor stations. The new plans include the building of a large booster station near Casper. At present it operates 287 miles of main gas carrying lines and 107 miles of distribution system. Some of the details of the proposed construction are not yet available, but it is probable that the main line will consist of 10 and 8-inch pipe and the lateral to Laramie, where the Midwest Refining Co. operates a refinery, will be of 6-inch pipe.

NO CONDENSERS USED IN TOPPING UNIT

(Continued from Page 30)

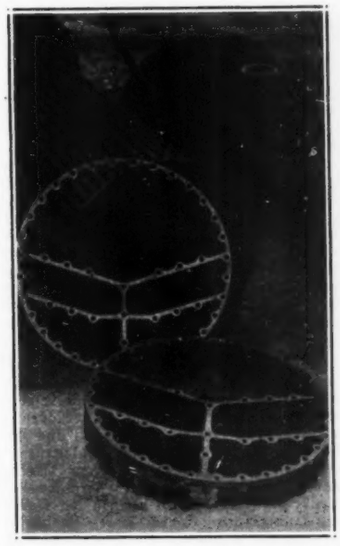
A.S.T.M. distillation of a stream sample picked at random and representative of normal operation.

A.S.T.M. DISTILLATION ON STREAM SAMPLE OF GASOLINE COMING FROM UNIT

Gravity	51.8
Initial	113° F.
10 per cent	119° F.
20 per cent	233° F.
30 per cent	254° F.
40 per cent	275° F.
50 per cent	297° F.
60 per cent	313° F.
70 per cent	336° F.
80 per cent	358° F.
90 per cent	386° F.
Endpoint	421° F.
Recovery	98.5%
Loss	.8%

Long Operating Cycle

The dependability of the units may be seen by the fact a recent run covered a period of 90 days including both units, and the total time off stream was but 48 hours. During that time approximately 450,000 bbls. of crude were run, 78 per cent of which was 18-19 gravity Venezuelan crude and the balance 33 gravity South Texas crude. It has been a general practice to shut the units down every 60 days, but at times they have even gone beyond a 90-day period of operation.



One of the tube bundles with the head removed. The respective sections through which the vapors, fuel oil, and gas oil pass may be most easily pointed out by referring to the outline of the gasket. The large section on top is for the overhead vapors which travel as a single pass. The two middle sections are for fuel oil, the stream entering one side and leaving the other side. The two bottom sections are for the gas oil handled in the same manner.

Small Furnaces

The furnaces are of usual design, including a bank of roof tubes and a wall bank. The stream is split as it enters the furnace and in this way the pump pressure on the crude has been reduced to 15 pounds. This has lessened gasket failures on the exchangers and reduced pumping costs without including local heating to the extent of causing a deposition of coke. The outlet temperature on the furnace is maintained at 660° F. and this, of course, is below the point where coking troubles would be introduced. The load on the furnace is light, also due to the fact that as the crude passes through the exchangers it is heated to approximately 450° F. before entering the furnace.

TEXT OF CALIFORNIA GAS LAW DECISION

(Continued from Page 34)

be grouped into the following propositions: (1) The act deprives petitioners of property without just compensation and without due process of law. (2) The statute is void for uncertainty and for failure of the legislature to define a standard of conduct. (3) The enactment permits the use of gas for lifting purposes in a reasonable proportion to the amount of oil produced and that the uncontroverted evidence shows no other or greater use and for that reason the court was without jurisdiction to grant the temporary injunction.

Turning then to the first contention, it is asserted that the act is violative of the Fourteenth Amendment to the Federal constitution and Sections 12 and 14 of Article 1 of the state constitution. To put the argument most favorably for the petitioners it is asserted that they have the same vested right to make use of the gas under their property for the purpose of lifting the oil thereunder that a riparian owner has to make use of the underflow of a stream passing through his property to lift the waters to levels of entry upon his land. It is therefore insisted by counsel that it is of prime importance to examine the nature of petitioners' rights.

While this is true in a degree, yet we do not attach the same weight as do petitioners to the pure legal question whether the owner of the surface is the owner of the gas in place under his soil subject to the right of an adjoining owner to appropriate to himself the title thereof by capture and possession, or whether the owner of the surface is vested only with the right to bore for gas and reduce it to possession.

In either event he is the owner of a valuable right. Every owner of the surface has a like interest and right of property, whatever it may be. We think, however, that the better reasoning, on account of the self-propelling or migratory character of natural gas, as well as oil, dictates the conclusion that while in general we may speak of the owner of the surface as being the owner of the gas and oil in place, what we really mean is that he and he alone has the right through his own property to endeavor to reduce the substances to possession; that when they are reduced to possession and then only does he have an absolute and unqualified title thereto.

Rights of Surface Owner

It is argued by petitioners and by some of those who have appeared as amici curiae that the law of California is settled to the effect that the owner of the surface is the owner of the gas and oil in situ. There are some general expressions in the authorities to this effect, particularly in tax cases where assessments have been levied upon a lease giving and granting to the lessee the right to bore for and extract the hydrocarbon substances. But they are not controlling or helpful here.

On the other hand, in distinguishing between oil and other minerals in the case of Acme Oil Co. vs. Williams, 140 Cal. 681, 74 Pac. 296, the Supreme Court said:

"Oil, on the contrary, is of a fluctuating, uncertain, fugitive nature, lies at unknown depths, and the quantity, extent, and trend of its flow are uncertain. It requires but a small surface area, in what is known as an oil district, upon which to commence operations for its discovery. But when a well is developed the oil may be tributary to it for a long distance through the strata which holds it. This flow is not inexhaustible, no certain control over it can be exercised, and its actual possession can only be obtained, as against others in the same field, engaged in the same enterprise, by diligent and continuous pumping. It is the property of anybody who can acquire the surface right to bore for it, and when the flow is penetrated, he who operates his well most diligently obtains the greatest benefit, and this advantage is increased in proportion as his neighbor similarly situated neglects his opportunity."

It is the coexistence of these rights which authorizes the State to make use of its legislative power. When the rights of one impinge upon the rights of others the State may interpose for the purpose of adjusting and regulating the enjoyment of those rights. This is, in a large part at least, the foundation of all the authorities which support the power of the State to regulate the production of oil and gas.

Cases Upholding State Authority

In Ohio Oil Co. vs. Indiana, 177 U. S. 190, 44 L. Ed. 729, it is said:

"No one owner of the surface of the earth, within the area beneath which the gas and oil move can exercise his right to extract from the common reservoir, in which the supply is held, without to an extent, diminishing the source of supply as to which all other owners of the surface must exercise their rights.

"The waste by one owner, caused by a reckless enjoyment of his right of striking the reservoir, at once, therefore, operate upon the other surface owners," and "* * * (T)he surface proprietors within the gas field all have the right to reduce to possession the gas and oil beneath. They could not be absolutely deprived of this right which belongs to them without a taking of private property. But there is a coequal right in them all to take from a common source of supply the two substances which in the nature of things are united, though separate. It follows from the essence of their right and from the situation of the things as to which it can be exerted, that the use by one of his power to seek to convert a part of the common fund to actual possession may result in an undue proportion being attributed to one of the possessors of the right to the detriment of the others, or by waste by one or more to the annihilation of the rights of the remainder. Hence it is that the legislative power, from the peculiar nature of the right and objects upon which it is to be exerted, can be manifested for the purpose of protecting all the collective owners, by securing a just distribution, to arise from the enjoyment by them of their privilege to reduce to possession, and to reach the like end by preventing waste." (Italic ours.)

In Lindsley v. Natural Carbonic Gas Co., 220 U. S. 61, 55 L. Ed. 369, where the court was considering a statute designed to prevent the waste of natural mineral water by pumping for the purpose of extracting the gas therefrom, after reference to and a discussion of the Ohio Oil Co. case just mentioned, it is said:

"The mineral waters and carbonic acid gas exist in a commingled state in the underlying rock, and neither can be drawn out without the other. They are of value in their commingled form and also when separated, but the greater demand is for the gas alone. Influenced by this demand, some surface owners, having wells bored or drilled into the rock, engage in extensive pumping operations for the purpose of collecting the gas and vending it as a separate commodity.

"Usually where this is done an undue proportion of the commingled waters and gas is taken from the common supply, and a large, if not the larger, portion of the waters from which the gas is collected is permitted to run to waste. Thus these pumping operations generally result in an unreasonable and wasteful depletion of the common supply and in a corresponding injury to others equally entitled to resort to it.

Bases for Regulatory Power

"It is to correct this evil that the statute was adopted, and the remedy which it applies is an enforced discontinuance of the excessive and wasteful features of the pumping. It does not take from any surface owner the right to tap the underlying rock and to draw from the common supply, but, consistently with the continued existence of that right, so regulates its exercise as reasonably to conserve the interests of all who possess it. That the State, consistently with due process of law, may do this, is a necessary conclusion from the decision in the case cited. But were the question an open one, we still should solve it in the same way."

We ought to pause long enough to direct attention to this last sentence on account of its bearing upon the argument presented here that the rule established by Ohio Oil Co. v. Indiana, supra, has become obsolete.

In Commonwealth vs. Trent, 117 Ky. 34, 4 Am. & Eng. Ann. Cas. 209, the court places the source of the regulatory power upon both grounds in the following language: "It is well known that the supply of gas is limited, and may be exhausted. The act is intended to protect the supply from waste. Under the act, it is conceded, a person to exhaust the supply of his neighbor, cannot put down wells on his own land and allow the gas to escape from the well. * * * The legislature may protect from waste the natural resources of the State, which are the common heritage of all. The right of the owner of property to do with it as he pleases is subject to the limitations that he must have due regard for the rights of others. To allow the storehouse of nature to be exhausted by the waste of the gas would be to deprive the State and its citizens of the many advantages incident to its use. That the legislature may prevent this is well settled." (Citing cases.)

Position of States

In Oklahoma the statute not only prevented the escape of gas into the air, "the intentional drowning with water of a gas stratum," the "underground waste" of gas, but also the "wasteful utilization of such gas,"

The Supreme Court of that State in the case of Quinton Relief Oil & Gas Co. v. Corporation Commission, 224 Pac. 156, after referring to Walls v. Midland Carbon Co., 254 U. S. 300, 65 L. Ed. 276, where a somewhat similar statute of Wyoming was under scrutiny, said: "A careful examination of the authorities show that there is almost unanimity in holding that the burning of natural gas for carbon purposes in high pressure fields, having sufficient rock pressure to force gas through a pipe line to domestic consumers, and where the same may be used for such purpose, constitutes a wasteful utilization thereof. Natural gas has twice the heating units as (sic) artificial gas, and taking into consideration the convenience of natural gas, it is intrinsically worth more than artificial gas, its market value being from $2 to $3 per 1,000 feet. The amount of carbon black produced from 1,000 feet of natural gas has a market value of about 10 cents. It therefore is obvious that the State, in the proper exercise of its police power and in conservation of so valuable a natural resource as natural gas, may prohibit the wasteful utilization of the same in the interest of the public welfare."

In State v. Carson Carbon Co., 162 La. 781, 111 So. 162, the Supreme Court of Louisiana sustained an enactment by which the owners of gas wells were prohibited from taking and using for the manufacture of carbon black more than 20 per cent of the potential capacity of a gas well.

In Oxford Oil Co. v. Atlantic Oil & Producing Co., 22 Fed. (2d) 597, the court says: "The right of a State to so regulate the drilling of wells for oil and gas as to conserve the rights of adjoining owners is too well settled to admit of serious controversy. (Ohio Oil Co. v. Indiana, 177 U. S. 190, 20 S. Ct. 576, 44 L. Ed. 720; Lindsley v. Natural Carbonic Gas Co., 220 U. S. 61, 31 S. Ct. 337, 55 L. Ed. 369, Ann. Cas. 1912C, 160.) It was within the power of the legislature to lay down a general rule for the protection of the mineral rights of the owners of adjoining lands, and to leave the details of enforcing that rule to an administrative agency or board. (Plymouth Coal Co. vs. Pennsylvania, 232 U. S. 531, 34 S. Ct. 359, 58 L. Ed. 713.)"

By a divided court in the case of Walls v. Midland Carbon Co., 254 U. S. 300, 65 L. Ed. 276, a statute of Wyoming declaring the use of natural gas from a well within 10 miles of an incorporated city "without the heat therein contained being fully and actually applied and utilized for either manufacturing or domestic purposes" to be a "wasteful and extravagant use" and unlawful, was held valid and constitutional. The court reasserted the doctrine that "a State may consider the relation of rights, and accommodate their coexistence, and, in the interest of the community, limit one that others may be enjoyed."

Decision on Restriction

It also says: "The determining consideration is the power of the State over, and its regulation of, a property in which others besides the companies may have rights and in which the State has an interest to adjust and preserve, natural gas being one of the resources of the State. And in this consideration it is more important to consider not for what a particular owner uses the gas, but the proportion of his use to that of others, or, it may be, the prevention of use by others; * * *"

It is apparent from the quotations that the legislative power of the State may be exercised for the purpose of adjusting coexisting rights. They also tend to indicate that the State may restrict or regulate the production of oil or gas on the theory of the public's interest in their natural resources. Whether this latter may be done we think is unnecessary to a decision of the present application.

But as indicating that there is grave doubt concerning this power we here make reference to the case of West v. Kansas Natural Gas Co., 221 U. S. 229, 55 L. Ed. 716. The State of Oklahoma attempted to prohibit the construction of pipe lines for natural gas or the transportation of the same except by domestic corporations, the charters of which were to provide that it should only be transported between points in the State and not outside.

The court in declaring the statute void said with reference to the power of the State to "preserve the common property" as distinguished from the right of the State to prevent waste: "The extent of power which the second question implies a State possesses challenges serious inquiry. The natural resources of a State may be other than natural gas; for example, may be timber and coal and iron and other metals; but it is contended that the right of conservation extends to these, and the broad statement of the first question" (the right of the State to preserve its resources) "is qualified in the argument by the properties of natural gas and the limitation of its supply.

"This, it is contended, gives a range to the police power of the State which otherwise it would not possess. And such power, as we understand the further contention to be, may determine not only the conservation of the resources of the State but as to what class of persons may use them, as dependent upon their transportation in State, rather than in interstate commerce. * * * The statute of Indiana" (considered in Ohio Oil Co. v. Indiana, supra) "was directed against waste of the gas, and was sustained because it protected the use of all the surface owners against the waste of any. The statute was one of true conservation securing the rights of property, not impairing them.

"Its purpose was to secure to the common owners of the gas a proportionate acquisition of it—a reduction to possession and property—not to take away any right of use or disposition after it had thus become property. It was sustained because such was its purpose; and we said that the surface owners of the soil, owners of the gas as well, could not be deprived of the right to reduce it to possession without the taking of private property.

Commercial Aspect

"It surely cannot need argument to show that if they could not be deprived of the right to reduce the gas to possession, they could not be deprived of any right which attached to it when in possession. The Oklahoma statute far transcends the Indiana statute. It does what this court took pains to show that the Indiana statute did not do.

"It does not protect the rights of all surface owners against the abuses of any. It does not alone regulate the right of the reduction to possession of the gas, but, when the right is exercised, when the gas becomes property, takes from it the attributes of property—the right to dispose of it; indeed, selects its market, to reserve it for future purchasers and use within the State, on the ground that the welfare of the State will thereby be subserved. The results of the contention

repel its acceptance. Gas, when reduced to possession, is a commodity; it belongs to the owner of the land; and, when reduced to possession, is his individual property, subject to sale by him, and may be subject to intrastate commerce and interstate commerce.

"The statute of Oklahoma recognizes it to be a subject of intrastate commerce, but seeks to prohibit it from being the subject of interstate commerce, and this is the purpose of its conservation. In other words, the purpose of its conservation is in a sense commercial—the business welfare of the State, as coal might be, or timber. Both of those products may be limited in amount, and the same consideration of the public welfare, which would confine gas to the use of the inhabitants of a State would confine them to the inhabitants of the State.

"If the States have such power, a singular situation might result. Pennsylvania might keep its coal, the Northwest its timber, the mining States their minerals. And why may not the products of the field be brought within the principle? Thus enlarged, or without that enlargement, its influence on interstate commerce need not be pointed out. To what consequences does such power tend? If one State has it, all States have it; embargo may be retaliated by embargo, and commerce will be halted at state lines. And yet we have said that 'in matters of foreign and interstate commerce there are no state lines.'

"In such commerce, instead of the States, a new power appears and a new welfare—a welfare which transcends that of any State. But rather let us say it is constituted of the welfare of all of the States, and that of each State is made the greater by a division of its resources, natural and created, with every other State, and those of every other State with it. This was the purpose, as it is the result, of the interstate commerce clause of the Constitution of the United States. If there is to be a turning backward, it must be done by the authority of another instrumentality than a court." (Italics ours.)

Conserving Supply

It is argued, however, that the statute involved herein does not proceed upon the theory of correlative rights, but only upon the policy of conserving or preserving the common supply. We cannot assent to this statement or construction of the enactment. It is true that Section 8b of the act declares the "unreasonable waste of natural gas * * * to be opposed to the public interest" and "to be unlawful," but it is also apparent from a reading of the entire act that unreasonable waste of gas is considered to be the production of an undue proportion of gas to the amount of oil, in the particular field involved, by one surface owner as against others, in those instances where the gas is not conveniently necessary for the "generation of light, heat, power or other industrial purpose."

That this is the intent and purpose of the law is made manifest from the following quotation from Section 8d:

If it shall appear that gas is being produced from any oil well or wells in quantities exceeding a reasonable proportion to the amount of oil produced from the same well or wells, even though it is shown that such excess gas is being used in the generation of light, heat, power or other industrial purpose and that there is sufficient other gas available for such uses from other wells in the same or other fields in which the gas produced is not in excess of the amount which bears a reasonable proportion to the amount of oil produced from such other wells and that there are adequate gas pipe line connections between such other wells and the place of utilization of such gas the state oil and gas supervisor shall hold that such excess production of gas is unreasonable waste thereof if such holding will not cause an unreasonable waste of gas in any other field. (Italics ours.)

The legislation was evidently adopted upon the theory that in every oil field there is what we may term (at least for illustrative purposes) a normal proportion of gas to oil; that when an unreasonable disproportion of gas to oil exists in a given well there is a corresponding loss of recoverable oil by other owners who would otherwise employ the lifting power of the excessive gas to good purpose; and that this disproportionate production of gas should not be permitted unless the gas as a separate thing be conveniently necessary for domestic or industrial purposes.

We have not overlooked the fact that the act makes the blowing or release of gas into the air prima facie proof of unreasonable waste. It is to be observed, however, that such waste is not absolutely prohibited as it was in Ohio Oil Co. v. Indiana, supra, but is only made a rule of evidence. But even if such were the results of the act the authorities from which we have quoted would dispose of the arguments of the petitioners.

Not As Stringent

We are, therefore, irresistibly led to conclude that the statute here involved is not as stringent in its restrictions as those in other jurisdictions, and further, that it does not deprive the petitioners of property without just compensation or due process of law but rather falls within the legislative authority of the State with the wisdom of which we cannot be concerned.

We also find authority of a persuasive character in our own State. In Ex parte Elam, 6 Cal. App. 233, 91 Pac. 811, the court was considering a statute to prevent the waste and flow of artesian wells and making it a misdemeanor to waste the flow thereof. On account of the pertinency of the discussion relative to a similar argument we deem it expedient to set forth in full the first question raised therein and the response of the court thereto. We quote as follows:

"The first point made by petitioner—which is that the act is violative of the Fourteenth Amendment of the constitution of the United States, which provides that no state shall 'deprive any person of life, liberty or property without due process of law, nor deny to any person within its jurisdiction the equal protection of the law,' and of Article 1, Section 1 of the constitution of this State, which provides that 'all men are by nature free and independent, and have certain inalienable rights, among which are those of enjoying and defending life and liberty, acquiring, possessing and protecting property,' and of Section 13, Article 1, which provides that no person shall be 'deprived of life, liberty or property without due process of law'—seems to have been met and demonstrated to be untenable by the supreme court of the United States in the case of Ohio Oil Co. v. State of Indiana, 177 U. S. 190, 20 Sup. Ct. Rep. 576.

Property Rights Underground

"By that case it is established that water, oil, gas and all fugitive substances held in their natural subterranean reservoirs are exceptions to the general rule establishing absolute ownership in the proprietor of the surface of all that lies underneath; that these minerals being migratory in their nature, having no fixed situs, are a part of the soil only so long as they are on or in it, but after they escape and go to other lands the title of the former owner is gone; that it follows, therefore, that no one owner of the surface of the earth within the area beneath which these minerals move can exercise his right to extract from the common reservoir in which the supply is held without diminishing the source of supply as to which all other owners of the surface must exercise their rights; that in consequence of the nature of the deposits, of their transmissibility, of their interdependence, of the rights of all and of the public at large, the State could lawfully exercise the power to regulate the right of the surface owners among themselves to seek to obtain possession, and to prevent the waste of the products in which all the surface owners within the area wherein they were deposited, as well as the public, had an interest.

"'No divesting of private property under such a condition can be conceived, because the public are the owners, and the enacting by the State of a law as to the public ownership is but the discharge of the governmental trust resting in the State as to property of that character.' This water, the ownership of which, until actual possession is acquired, being in the public, or at least that portion of the public who may own the surface of the soil within the artesian belt, is subject to a reasonable use only by those interested therein. This reasonable use is determined in Katz v. Walkinshaw, 141 Cal. 134, 99 Am. St. Rep. 35, 70 Pac. 663, 74 Pac. 766, to be the use of such amount of the subterranean water 'as may be necessary for some useful purpose in connection with the land from which it is taken.'

"The conditions existing in this State with reference to the necessity for the conservation of irrigating waters are most clearly set out in the case last cited, and the reasons for the rule restricting the use clearly shown. Whenever a landowner exceeds this reasonable use he is appropriating to himself that which belongs to others who are entitled to a like use, and to that extent is obstructing the free use of property so as to interfere with its comfortable enjoyment, and which, by Sections 3,479 and 3,480, Civil Code, is declared to be a public nuisance.

Public Not Injured

"Whatever right one has, even in his own, is subject to that established principle that his use shall not be injurious to the rights of others, or of the general public. This act, therefore, relates to waters, the right to the use of which is common to a large portion of the community, and affects the general public right. Legislation in relation thereto affects the public welfare, and the right to legislate in regard to its use and conservation is referable to the police power of the State, which is declared in Ex parte Whitwell, 98 Cal. 78, 35 Am. St. Rep. 152, 32 Pac. 870, to be 'the power to make laws to secure the comfort, convenience, peace and health of the community.' 'The police power, deriving its existence from the rule that the safety of the people is the supreme law, justifies legislation upon matters pertaining to the public welfare, the public health, or the public morals.' (Ex parte, Drexel, 147 Cal. 766, 82 Pac. 429.)

"It is settled law that all property is held subject to the exercise of police power, and that provisions of the constitution declaring that property shall not be taken without due process of law have no application in such cases. (Odd Fellows' Cem. Assn. v. San Francisco, 140 Cal. 230, 73 Pac. 987.)" (Italic ours.)

It is to be observed that the case of Ohio Oil Co. v. Indiana, supra, is approved and legislation of a character very much akin to the enactment now under scrutiny has been found not to invade the constitutional provisions against deprivation of property without compensation and without due process of law.

In the discussion of the problem to this point we think the essential difference from the question involved in Hermingshaus v. Southern California Edison Co., 200 Cal. 81, 252 Pac. 607, is made apparent. It is to be noted that the contest in that case was between a riparian owner, whose rights have long been established in our jurisdiction, and an appropriator of water who cannot divest a private existing right by his act of appropriation. This is quite a different thing from the adjustment and regulation of the coexisting rights of several persons.

The rights here involved are more nearly analogous to those discussed in Ex parte Elam, supra, and in Eckel v. Springfield Tunnel, etc., Co., 87 Cal. App. 617, 262 Pac. 425, in the latter of which cases the rule was reannounced that as between riparian owners one can only take his reasonable share thereof. It is there determined that he cannot take all that is reasonably required to develop his land, but only that amount that will not unreasonably deprive the owners of coequal rights of a proper proportion.

Enactment Not Uncertain

We therefore turn to the second angle of our problem: Is the statute void for uncertainty and the failure of the legislature to define a standard of conduct? The objection thus urged against the enactment arises from the use of the word "unreasonable." Were it not for the argument that it is not waste to permit the use of the gas to lift the oil to the surface it would be obvious that without the qualifying word the enactment could not be subjected to attack on the ground of uncertainty.

As we have heretofore observed, the Indiana statutes prohibited all waste, and the United States Supreme Court concluded it to be a proper exercise of the legislative authority despite the argument that the owners of the surface were entitled to make use of its force to raise the oil from beneath the ground. Undoubtedly the legislature had in mind the Indiana statute and its construction, as well as others from other oil-producing states.

It would seem to logically follow that they made use of the word unreasonable for the very purpose of providing that the operators of a well might utilize a reasonable proportion of gas for the purpose of lifting the oil to the surface. This thought coincides with that indicated by the language we have already quoted to the effect that it shall be held to be an unreasonable waste of gas for one to produce gas in excess of "a reasonable proportion to the amount of oil produced," when such gas is not conveniently necessary for other than lifting purposes.

When viewed in this light we think the word unreasonable is not so uncertain as to render the enactment void and inoperative. In fact, our courts have frequently applied the rule of reasonable use between riparian owners where similar correlative rights are involved. We have already cited the case of Eckel v. Springfield Tunnel, etc., Co., and Ex parte Elam, and to these we may add the following: Irrigation Dist. v. Mount Shasta P. Corp., 202 Cal. 56, 259 Pac. 444; Turner v. The James Canal Co., 155 Cal. 82, 99 Pac. 520.

Authorities Support Terminology

In the latter of these two cases the words are so pertinent that they should be quoted. They are: "Out of regard to the equal rights of others whose lands may abut upon the same water the law has declared, as will hereafter be more fully shown, that the use of the water for irrigation, so far as it affects the rights of others similarly situated, must be reasonable, and must be confined to a reasonable share thereof. But with this common limitation, the right to use water upon adjoining land applies as well to the water of a lake, pond, slough or any natural body of water, by whatever name it may be called, as to a running stream." (Italic ours.)

In a slightly different situation, but still for the purpose of adjusting coequal rights, the Supreme Court applied the same doctrine in Katz v. Walkinshaw, 141 Cal. 128, 74 Pac. 766, and San Bernardino v. Riverside, 186 Cal. 25, 198 Pac. 784. In the former it said: "The doctrine of reasonable use, on the other hand, affords some measure of protection to property now existing, and greater justification for the attempt to make new developments. It limits the right of others to such amount of water as may be necessary for some useful purpose in connection with the land from which it is taken. * * * The objection that this rule of correlative rights will throw upon the court a duty impossible of performance, that of apportioning an insufficient supply of water among a large number of users, is largely conjectural."

In the latter we find these words: "With regard to such landowners these cases hold that each owner of land overlying the same general underground supply of water may take such water on his own land for any beneficial use thereon, so long as such taking works no unreasonable injury to other land overlying such waters; that if the natural supply is not sufficient for all such owners, each is entitled only to his reasonable proportion of the whole, and that each may apply to the courts to restrain an injustice and unreasonable taking by another and to have the respective rights adjudicated and the use regulated so as to prevent unnecessary injury and restrict each to his reasonable share." (Italic ours.)

Grant of Discretionary Power

These authorities set at rest the conten-

tion that the enactment is uncertain as well as the incidental assertion that the legislature has by the language of the act and its failure to define a standard of conduct with greater rigidity, attempted to confer upon the court a legislative function. From them, as well as those cases such as Standard Oil Co. v. U. S., 221 U. S. 1, 55 L. Ed. 619, wherein the court announced and adopted the "rule of reason" holding that it was only those unreasonable restraints of trade which were intended to be curbed by the Sherman Antitrust Act, we find that the courts have for a considerable period of time been accustomed in circumstances such as are concerned in the present enactment to apply the standard and guide of reason for the adjustment of those rights the unrestricted exercise of which would injuriously affect the rights of others. In fact, it is not a new rule in the domain of jurisprudence but a new adaptation of the old maxim: "sic utere tuo ut alienum non laedas." (Italic ours.)

Sufficient has been said to effectually dispose of the remaining argument of the petitioners and demonstrate that it is founded on a misconception of the legislative intent. Their argument is in effect that they are not producing an undue proportion of gas when the gas production is measured by the oil from one specific well. But this is obviously not the purpose of the law, as may clearly be seen.

Suppose a well as drilled on the edge of an oil field and comes in, as what is commonly termed "a gasser," that is, a well which produces an insignificant quantity of oil. Conceivably such a well might drain the field of its supply of gas, leaving the oil therein unrecoverable, to the great and irreparable injury of the other surface owners. We have instanced an extreme possibility, but our interpretation of the act is that it was intended to remedy a lesser, but nevertheless unreasonable, degree of waste of the same character.

Limit on Production of Oil Not Intended

Another answer to this argument of petitioners is that having determined that the court has the jurisdiction to determine what is an unreasonable waste, we cannot interfere by the writ of prohibition to deprive its judgment of effect. And we here direct attention to the determination of the respondent court that "there appears to be an unreasonable waste of natural gas in the Santa Fe oil field," and "that the evidence available * * * shows that the unreasonable waste of natural gas in said field may be substantially reduced and that the equities of all parties may be fairly conserved by a preliminary injunction which will limit the waste of gas by restricting the production thereof to a quantity reasonably in excess of the present outlets for beneficial use aboveground, etc., etc." It does not appear from the facts presented to us that so far as the particular case before us is concerned the court exceeded its jurisdiction in finding as we have already quoted.

It is suggested in the briefs that the legislature is without authority to restrict the production of oil, and lest we be misunderstood we deem it expedient to add that the record does not indicate that the temporary injunction was founded upon such a theory. Nor are we determining that the act attempts to confer upon the court any such power.

Rather we are convinced that a proper construction of the enactment confines the authority within the limits of enjoining the production of gas when in excess of the reasonable proportion to the oil for the particular field involved, when not conveniently necessary for other than lifting purposes.

Writ of prohibition denied.

We concur: P. J. Works, J. Craig.

PANHANDLE FIELDS

(Continued from Page 66)

Petroleum Co.'s No. 1 Jones, dry and abandoned, total depth 1,759 feet.

Montague County

Godfrey and others' No. 2 Lemmon, show oil and gas 889 and 878 feet, initial production 3 bbls., total depth 899 feet. McCrory's No. 2 Loy and others, top pay 803 feet, initial production 8 bbls., total depth 819 feet.

Wichita County

Lambert and Trout's No. 11 Overby, top pay 1,240 feet, initial production 60 bbls., total depth 1,247 feet. Turman Oil Co.'s No. 21 Waggoner, top pay 1,460 feet, initial production 30 bbls. oil and 12 bbls. of water, total depth 1,486 feet.

Young County

Chandler's No. 2 Carpenter, top pay 1,011 feet, initial production 18 bbls., total depth 1,029 feet. Fullerton's No. 3 Belknap Cattle Co., top pay 570 feet, initial production 15 bbls., total depth 574 feet. Fullerton's No. 4 Belknap Cattle Co., top pay 579 feet, initial production 10 bbls., total depth 591 feet. Jacob Oil & Gas Co.'s No. 1 Kindley, top pay 3,485 feet, initial production 51 bbls., total depth 4,005 feet. Lindsey Drilling Co.'s No. 1 Howard, dry and abandoned, total depth 990 feet. Panhandle Refining Co.'s No. 7 Watson, dry and abandoned, total depth 731 feet. Petroleum Producers Co.'s No. 5 Graham, top pay 690 feet, initial production 200 bbls., total depth 702 feet. Robertson Drilling Co.'s No. 1 Barrett, dry and abandoned, total depth 647 feet. Riggs' No. 3 Kirkland, top pay 701 feet, initial production 410 bbls., total depth 715 feet. C. E. Scott's No. 1 McClure, dry and abandoned total depth 480 feet. H. R. Stastny and others' No. 1 Eichelberger, dry and abandoned, total depth 953 feet. Swink and Smith's No. 2 Belknap Cattle Co., top pay 652 feet, initial production 155 bbls., total depth 667 feet. Willis and Terrell's No. 1 Belknap Cattle Co., top pay 554 feet, initial production 10 bbls., total depth 722 feet. Willis and Terrell's No. 2 Belknap Cattle Co., top pay 563 feet, initial production 14 bbls., total depth 570 feet. Willis and Terrell's No. 4 Belknap Cattle Co., top pay 559 feet, initial production 17 bbls., total depth 571 feet. Hightower and others' No. 1 Wells, dry and abandoned, total depth 1,004 feet.

COMPLETIONS IN PANHANDLE DISTRICT

Carson County

Gibson Oil Corp.'s No. 1 Foster & Co., total depth 2,840 feet, 14,000,000 feet of gas from 2,630-2,840 feet. Plains Holding Co.'s No. 2 McConnell, initial production 63,000,000 feet of gas from sand 2,445-2,690 feet, total depth 2,690 feet.

Gray County

Empire Gas & Fuel Co.'s No. 1 Bell, initial production 30,000,000 feet of gas from 2,880-2,903 feet, total depth 2,903 feet. Empire Gas & Fuel Co.'s No. 1 Cantell, initial production 38,500,000 feet of gas from 2,630-3,010 feet, total depth 3,010 feet. Magnolia Petroleum Co.'s No. 1 Latham, top pay 3,141 feet, initial production 1,815 bbls., total depth 3,153 feet. Shamrock Oil & Gas Co.'s No. 1 Reynolds, total depth 3,193 feet, plugged back to 3,103 feet, shot second time with 95 quarts from 2,990-3,030 feet, initial production 10 bbls. The Texas Company's No. 3 Brown, top pay 3,261 feet, initial production 124 bbls. and 2,000,000 feet of gas, total depth 3,272 feet. Dulaney & Ward's No. 1 Mose, dry and abandoned, total depth 2,892 feet.

Hutchinson County

Dixon Creek Oil Co.'s No. 1-E Johnson Brothers, total depth 3,112 feet, plugged back 2,720 feet, initial production 9,000,000 feet of gas from 2,325-2,720 feet.

Wheeler County

Devore & Robinson's No. 1 Sewell, abandoned location.

COMPLETIONS IN RANGER DISTRICT

Callahan County

Southern Petroleum Exploration Co.'s No. 1 Ross estate, total depth 1,268 feet, gas sand 1,259-69 feet, initial production 1,700,000 feet of gas with 385 pounds rock pressure. Star Drilling Co.'s No. 1-E Finley, dry and abandoned, total depth 994 feet.

Coleman County

Canyon Oil & Gas Co. and others' No. 1 Kellar, dry and abandoned, total depth 1,635 feet. Joines and others' No. 1 Burk, abandoned, location. Rector Oil Co. and Midwest Exploration Co.'s No. 1 Gill, dry and abandoned, total depth 1,032 feet.

Eastland County

Horner and others' No. 1 Dooley, dry and abandoned, total depth 1,825 feet. Anna Belle Oil Co.'s No. 1 Hoyt, dry and abandoned, total depth 3,817 feet. Rover Drilling Co.'s No. 2 Chastain heirs, dry and abandoned, total depth 1,906 feet.

Stephens County

Texas Pacific Coal & Oil Co.'s No. 5 Johnson, dry and abandoned, total depth 1,969 feet.

THE POROSITY OF THE HOBBS POOL

(Continued from Page 70)

32 while the large nose in the southern part of Section 20 and the north part of Section 29 is tied in nicely by Amerada's Nos. 3 and 4 and Humble's No. 1 all in Section 29.

A further study of the north and west sides of the pool—this is under "B" of the four main points, shows no breaks along the southwest edge. The porosity of this part of the field seems to be remarkably uniform and about the only point of interest is the area of poor porosity in Sections 30 and 31. While this area is well inside the producing contour, it has not yielded any good wells.

The north edge of the pool is uniform with the exception of the one sharp break in Section 19. This break in having 10 wells for controls is one of the most accurate in the entire pool and allowed Shell's No. 8 well to be gauged before it was brought in.

The third, or "C" factor, does not need a discussion but the fourth or "D" factor is the question mark of the entire map.

At first the 16,000-bbl. well of Humble in Section 25 seemed to be a weak spot in our picture and yet if this well is in a porosity high saddling in Section 30 to the east, it would indicate further production to the west. Then, there is The Texas Company's No. 2 in the NE. Section 25, good for 10,000 bbls. which admirably works into this last belief. Therefore, everything would indicate an extension of production to the north and west.

In conclusion, it is the purpose of this map to show the different potentials within the proved limits of the pool, the possibilities of undrilled wells, the value of porosity as a contouring medium and the trend of further development.

OLD PRICE AT TACOMA, SEATTLE AND PORTLAND

LOS ANGELES, Calif., Dec. 15.—The restoration of gasoline prices at Portland, Ore., and at Seattle and Tacoma in Washington was the most important development on the Pacific Coast during the past week. Prices in these districts were cut on November 12 and restored December 12. Restoration of the original price schedule existing previous to November 12 re-establishes the retail quotation at Seattle and Tacoma to 21½ cents per gallon and at Portland to 22½ cents, tax included. No change was made at Spokane, Wash., as the highly competitive condition which recently resulted in a drastic cut in that area prevented Pacific Coast marketers from re-establishing a schedule which would conform with prices in other districts.

In southern California territory a further weakening was noted in both straightrun gasoline and casinghead gasoline. Export prices for both U. S. Motor gasoline and 400 endpoint gasoline were also lower. U. S. Motor for export is being quoted at 5 cents per gallon despite an offer of the Standard Oil Co. to take deliveries f.o.b. tankers at 6½ cents per gallon. Case goods for export, however, nets back in some cases as high as 8 cents per gallon. The General Petroleum Corp. will begin distribution in Pacific Coast territory on December 20 of a new Socony motor oil, which is listed as a 100 per cent paraffine base dewaxed oil. The General Petroleum, a subsidiary of the Standard Oil Co. of New York, is selling colored gasoline exclusively on the Pacific Coast.

In addition to Ethyl Gasoline, which is universally red in color, the General Petroleum is marketing another colored product designated as violet ray. The Standard, Union, Associated, Texas and Richfield are marketing both white gasoline and Ethyl. The Gilmore Oil Co. is distributing a blue green gasoline exclusively. The Shell Oil Co. of California is marketing a white gasoline designated as Shell 400 and a golden colored gasoline designated as Super Shell. The U. S. Refining Co. is distributing purple gasoline, while the Wilshire Oil Co. is marketing both a white gasoline and another product called Wilshire Red. It is interesting to note that although the largest amount of gasoline sold on the Pacific Coast is white, marketers distributing colored gasoline have shown the most consistent increase in gallonage due to both a psychological and advertising standpoint.

WILDCAT OPERATIONS IN TEXAS PANHANDLE

(Continued from Page 66)

Magnolia Pet. Co.'s No. 2 Sailor, 330 ft. S and W, E½ NE, Sec. 138, Blk. 3, I.&G.N. Sur. ..... Bldg. rig.

Mazda Oil Co.'s No. 1 Combs & Worley, 330 ft. S, 330 ft. W, NE, Sec. 35, Blk. 3, I.&G.N. Sur. ..... Drlg. 1,120 ft.

Midwest Explin. Co.'s No. 1-B Taylor, 660 ft. N and W, Sec. 7, Blk. H, A. W. Willard Sur. ..... Straightreaming 2,780 ft.

Midgray Oil Co.'s No. 1 McCullough, 267 ft. N, 150 ft. E of 246.9 ac. in Sec. 153, Blk. 3, I.&G.N. Sur. .... Estimated 30,000,000 ft. gas 2,477-2,680 ft; drlg. 2,769 ft.

Nelson et al's No. 1 Crews, 330 ft. S and E, NW, Sec. 12, Blk. 25, H.&G.N. Sur. ..... Fishing for bit; T.D. 2,620 ft.

North American O. & G. Co.'s No. 1 Sullivan, 1,320 ft. S and E. Sec. 160, Blk. 3, I.&G.N. Sur. ..... Rigging up; (rotary).

Operators Royalty & Prod. Co.'s No. 2 Vanniman, 330 ft. S and W, E½ NE, Sec. 175, Blk. 3, I.&G.N. Sur.. Location.

Phillips Pet. Co.'s No. 1 Barrett, 330 ft. S, 150 ft. W, W½, N 56 ac., Sec. 1,360, Blk. 3, I.&G.N. Sur. .... 5,000,000 ft. gas 2,760-75 ft; 8,000,000 ft. gas 2,950-55 ft; pipe stuck at 3,030 ft.

Phillips Pet. Co.'s No. 2 Barrett, 130 ft. N, 465 ft. W, Sec. 136, Blk. 3, I.&G.N. Sur. ..... T.D. 3,010 ft; set 6-in. csg.

Prairie O. & G. Co.'s No. 1 Reynolds, 330 ft. S and E, NW, Sec. 84, Blk. 3, I.&G.N. Sur. ..... Estimated 1,900,000 ft. gas 2,590-2,920 ft; S.O. 3,097 ft; drlg. 3,390 ft.

W. A. Scott's No. 1 Cobb, 330 ft. S, 425 ft. W, N½ SE, Sec. 184, Blk. 3, I.&G.N. Sur. ..... Estimated 4,000,000 ft. gas 2,875 ft; fishing 3,106 ft.

Skelly Oil Co.'s No. 1 Heitholt, 150 ft. N, 3,806 ft. W, Sec. 153, Blk. 3, I.&G.N. Sur. ..... 9,000,000 ft. gas 2,606-2,865 ft; fishing 2,915 ft.

Smith's No. 1 Morse, 200 ft. S, 330 ft. W, Sec. 6, Blk. 26, H.&G.N. Sur. ..... 3,000,000 ft. gas 2,150-70 ft; S.D. 2,892 ft; 400 ft. oil in hole.

Southern States Gas Co.'s No. 1 Case, 330 ft. N and W, E½, Sec. 181, Blk. B-2, H.&G.N. Sur. ..... Spudded.

Sullivan & Ochiltree's No. 1-A Morse, 330 ft. S and W, N½ NE, Sec. 15, Blk. A-9, H.&G.N. Sur. ..... Rig.

Warner Oil Co.'s No. 1 Morse, 330 ft. S and W, N½ NW, Sec. 68, Blk. 25, H.&G.N. Sur. ..... Cellar.

HUTCHINSON COUNTY

Combination O. & G. Co.'s No. 1 Johnson Bros. (Whaley), C SE SW, Sec. 2, Blk. Y-2, T.T.R.R. Sur. .... Drlg. 1,250 ft.

Deal O. & G. Co.'s No. 2 Sanford, 330 ft. N and E. of N 80 ac., S 160 ac., Sec. 81, Blk. 46, H.&T.C. Sur. .. S.D.

Dixon Creek Oil Co.'s No. 1-F Johnson Bros., 330 ft. N and E of W 67 ac., SW, Sec. 15, Blk. XO3, H.&O.B. Sur. ..... Location.
Huber Prod. Co.'s No. 1 Johnson Bros. (Premier), 330 ft. N and E, of W 60 ac., N 80 ac., NW, Sec. 3, Blk. Y, A.&B. Sur. ..... Rotary rig.
Liner Drlg. Co.'s No. 1-D Johnson Bros., 330 ft. N and E, W½ SW, Sec. 6, Blk. 1, B.&B. Sur. ..... Drlg. 900 ft.
Texas Interstate P. L. Co.'s No. 1 Bivins, C E½ of N 160 ac., Sec. 91, Blk. 6, H.&T.C. Sur. ..... Drlg. 2,005 ft.
Liner et al's No. 1 Johnson Bros., 990 ft. S, 330 ft. E, W½ SE, Sec. 29, Blk. Y, A.&B. Sur. ..... Correction; spudded and S.D.
Midwest Expltn. Co.'s No. 1 Barnbell, common cor. of tracts 28, 29, 30 and 31 of G. Martinez Sur. Blk. 2. Cellar.
Mitchell et al's No. 1 Dunnaway, 330 ft. N, 990 ft. E, Sec. 7, T.T.R.R. Sur. ..... Bldg. rotary rig.
Sinclair O. & G. Co.'s No. 1-A Johnson Bros., 330 ft. N, 430 ft. E, NW, Sec. 32, Blk. Y, A.&B. Sur. .... Drlg. 2,575 ft.
Skelly Oil Co.'s No. 1 Johnson Bros., 660 ft. S and W, SE, Sec. 30, Blk. Y, A.&B. Sur. ..... S.O. 3,065 ft. and 3,108-10 ft; S.D for pipe line connection 3,110 ft.

LIPSCOMB COUNTY

Okla. Public Service Co.'s No. 1 C. W. Jones, NE SW, Sec. 100, H.&T.C. Sur. ..... Lowering 5 3/16-in. csg; T.D. 5,003 ft.

LUBBOCK COUNTY

Center Oil Co.'s No. 1 Bowles Ranch ..... Small S.O. 1,133-40 ft; S.D. 4,167 ft.

MOORE COUNTY

Cloud & Dana's No. 1 Jones, 330 ft. N and E, SW, Sec. 169, Blk. 3-T, T.&N.O. Sur. ..... Rotary rig on ground.
Dana O. & G. Co.'s No. 1 R. Utey, 330 ft. N, 330 ft. E, W½ SE, Sec. 135, T.&N.O. Sur. ..... Rig on ground.
Delmar Oil Co.'s No. 1-A Jones, 330 ft. N, 990 ft. E, NW, Sec. 171, Blk. 3-T, T.&N.O. Sur. ..... Estimated 100,000,000 ft. gas 3,090 ft; T.D. 3,414 ft; T.P. 3,360 ft; spraying 3 bbls. per hr.
Gulf Prod. Co.'s No. 1 Dare, C SE, Sec. 312, Blk. 44, H.&T.C. Sur. ..... Drlg. 1,750 ft.
Home Gas Co.'s No. 1 Reeder, 330 ft. N and W, N½ E½ NE, Sec. 191, Blk. 3-T, T.&N.O. Sur. ..... 25,000,000 ft. gas 3,139-3,200 ft; S.D. 3,505 ft.
Morton et al's No. 1 Rupert, 660 ft. N, 330 ft. E, NW, Sec. 191, Blk. 3-T, T.&N.O. Sur. ..... Cellar.
Shamrock O. & G. Co.'s No. 1 Sullivan, 330 ft. S and E, NE, Sec. 139, Blk. 3-T, T.&N.O. Sur. ..... Drlg. 2,551 ft.
Sunray Oil Co.'s No. 1 C. R. Jones, 330 ft. E, 330 ft. S, W½ SW, Sec. 164, T.&N.O. Sur. ..... S.D. 3,220 ft.
Sunray Oil Co.'s No. 2 Jones, 330 ft. S, 990 ft. E, W½ SW, Sec. 164, Blk. 3-T, T.&N.O. Sur. ..... Rig on ground.

MOTLEY COUNTY

Matador Oil Corp.'s No. 1 Owens, C NE, Sec. 10, Blk. G, B.&B. Sur. ..... S.D. 580 ft.

OLDHAM COUNTY

Amalgamated German-Amercian Oil Corp.'s No. 1 Norton, 330 ft. S and E, Sec. 12, T.&N.O. Sur. ..... Spudded and S.D.
Chambers et al's No. 1 Herring, CNL, Sec. 29, Blk. S, G.C.&S.F. Sur. ..... S.D. 680 ft.

POTTER COUNTY

Texas Interstate P. L. Co.'s No. 1 Rockwell, C N½ S½, Sec. 102, Blk. 46, H.&T.C. Sur. ..... Drlg. 1,375 ft.

WHEELER COUNTY

Devore & Robinson's No. 1 Sitter, 2,310 ft. S and E, Sec. 33, Blk. 24, H.&G.N. Sur. ..... Location.
Guernsey Oil Co. et al's No. 1 Sewell, 320 ft. N and E, Sec. 38, Blk. 13, H.&G.N. Sur. ..... S.G. 1,985 ft; S.D. 2,305 ft.
Murchison & Fain's No. 2 Magnolia Pet. Co. (fee), 660 ft. N and E, Sec. 54, Blk. 23, H.&G.N. Sur. ..... Drlg. 1,780 ft.
Wischkamper et al's No. 1 Kiser, 330 ft. N and E, SW, Sec. 33, Blk. 17, H.&G.N. Sur. ..... Crooked hole 2,573 ft.
Woodley et al's No. 1 Sloss & Admire, 660 ft. N, 330 ft. E, Sec. 47, Blk. 13, H.&G.N. Sur. ..... S.O. 2,150-90 ft; some wtr; T.D. 2,223 ft; estimated 25-bbl. well from pay at 2,205-10 ft.
Vollmert's No. 1 Porter, 330 ft. S and E, NE, Sec. 15, Blk. 27, H.&G.N. Sur. ..... S.D.

WILDCAT OPERATIONS IN WEST TEXAS

(Continued from Page 65)

Kornrumpf et al's No. 1 Garren, 330 ft. S and W, Sec. 15, Blk. 79, Public School Land ..... Drlg. 1,175 ft.

DAWSON COUNTY

Albaugh et al's No. 1 Robinson, C NW, Sec. 46, Blk. M, E.L.&R.R. Sur. ..... Standard rig and tools.

ECTOR COUNTY

H. F. Wurtz' No. 1 E. A. Ibbetson et al, 330 ft. from N and E lines of NW, Sec. 16, Blk. 46, Twp. 3s, G. M. M.Br.&A. Sur. ..... Drlg. 3,280 ft.
Skelly Oil Co. and Republic Prod. Co.'s No. 1 McKenzie, 990 ft. from S line and 330 ft. from E line of Sec. 28, Blk. 45, Twp. 2s, T.&P. Sur. ..... Shut down 3,750 ft.; flowed 110 bbls. on July 12, shut in for storage.
Southern Crude Oil Pur. Co.'s No. 2 Cowder & Co., 660 ft. from S and W of NE cor., Sec. 34, Blk. 43, Twp. 1n, T.P. Sur. ..... Drlg. 1,125 ft.

EL PASO COUNTY

Lane-The Texas Company's No. 1 Malone, 2,110 ft. from SW and NW of Sec. 46, J. M. Day Sur. ..... Shut down 3,089 ft.

FISHER COUNTY

Condor Pet. Co.'s No. 1 Wilson, 330 ft. from N and 1,200 ft. from W, Sec. 6, W. E. Richardson Sur. ..... Drlg. 2,375 ft.
Cranfill & Reynolds' No. 2 Flannigan, 330 ft. from S and E of W½, Sec. 200, B.B.B.&C. Sur. ..... Shut down 3,130 ft.
Cranfill & Reynolds' No. 3 Willingham, 330 ft. from S and E of Sec. 307, B.B.B.&C. Sur. ..... Shut down 3,090 ft.
Roeser & Pendleton's No. 1 Littleton, 1,600 ft. from S and 660 ft. from W of SE Sec. 191, B.B.B.&C. ..... Spudding (cable).
The Texas Company's No. 2-A Stephens, 330 ft. from S and E, Sec. 79, Blk. 1, H.&T.C. Sur. ..... Drlg. 2,858 ft.
The Texas Company's No. 1-B Teagarden, 1,990 ft. from S and 440 ft. from E, Sec. 3, W. F. Richardson Sur. .... Drlg. 2,865 ft.

GAINES COUNTY

Texas Consolidated Oil Co. et al's No. 1 Jones, 2,310 ft. from NE, Sec. 4, Blk. A-3, P.S.L. Sur. ..... Drlg. 115 ft.

GARZA COUNTY

Pandem Oil Corp.'s No. 1 Justice, 330 ft. from S and W of Sec. 12, Blk. 4, H.&G.N. Sur. ..... Spudded and shut down.

GLASSCOCK COUNTY

F. H. E. Oil Co.'s No. 1 Meek, 1,650 ft. N and E parallel to section lines of SW cor., Sec. 7, Blk. 34, Twp. 3s, T.&P. Sur. ..... Total depth 2,926 ft.; reaming down.
Timberlake & Snyder's No. 1 Meek, 2,310 ft. W and 1,650 ft. N of SE cor., Sec. 7, Blk. 34, Twp. 3s, T.&P. Sur. .. Total depth 2,956 ft.; shut down.
World Oil Co.'s No. 3-C McDowell, 2,310 ft. from S and W of NE cor., Sec. 21, Blk. 34, Twp. 2s, T.&P. Sur. .. Shut down 660 ft.

HOWARD COUNTY

Cosden Oil Co.'s No. 6-A Roberts, 200 ft. N and E of SW cor., Sec. 129, Blk. 29, W.&N.W. Sur. ..... Sulphur water 1,433-46 ft.; shut down 1,456 ft.
G. F. Getty's No. 1 Snyder, Sec. 27, Blk. 10, Twp. 1s, SW cor. NE NE ..... Drlg. 3,205 ft.; small show oil 3,125-45 ft.
Magnolia Pet. Co.'s No. 1 Kelley Roberts, 330 ft. S and E, Sec. 112, Blk. 29, W.&N.W. Sur. ..... Cleaning out 700 ft.
Moody Oil Corp.'s No. 23-B Roberts, 990 ft. from N and W of Sec. 137, Blk. 29 ..... Shut down 261 ft.

HUDSPETH COUNTY

Theison's No. 1 University, 3,050 ft. from S and 2,225 ft. from E of Sec. 17, Blk. E ..... Spudded 35 ft. and shut down.
Western States Oil Co.'s No. 1 Gardner & Moseley, NE NW, Sec. 12, Blk. 16 ..... Shut down 3,155 ft.

IRION COUNTY

Central Oil Co.'s No. 2 Horney, 150 ft. from N and 1,320 ft. from E, Sec. 3, Blk. 3, H.&T.C. Sur. ..... Fishing 1,185 ft.
Cromwell et al's No. 3 Tankersley, 150 ft. from N and 210 ft. from W of E½, Sec. 1,320, G.C.&S.F. Sur. ..... Shut down 1,712 ft.; show oil 1,621-25 ft.
Dixie Oil Co.'s No. 1 Williams, 1,320 ft. from S and E of Sec. 1,196, T.T.R.R. Sur. ..... Standard rig.
Straughn & Texannati Oil Co.'s No. 1 Tankersley, 150 ft. from S and 750 ft. from W of Sec. 4, Gonzales County School Land ..... Underreaming 1,395 ft.; slight show oil 1,390-95 ft.; will test.
Williams & Williams' No. 1 Noelke, 300 ft. from N and 1,020 ft. from E, Sec. 8, City of San Antonio Sur. .... Shut down 3,401 ft.
F. F. Webb's No. 1 W. H. Williams, 200 ft. from E and 750 ft. from S line, SW NE, Sec. 10, Gonzales County School Land ..... Shut down 100 ft.

JONES COUNTY

McBest et al's No. 1 Roberts ..... Total depth 1,000 ft.
Shaheen & Duffy's No. 1 King, 2,650 ft. from N and 165 ft. from W of M. Bueno Sur. No. 196, Abstract 13. . Spudding.
Union Oil Co. of Nevada et al's No. 1 Hedrick, 200 ft. from N and W of 91.4-acre farm in G. Martinez Sur., Abst. 262, Sub. 5 ..... Drlg. 1,825 ft.
S. C. Yingling et al's No. 1 Cade, 330 ft. from N and W from SE cor. NW, Sec. 17, Blk. 19, T.P. Sur. ..... Drlg. 1,820 ft.

LOVING COUNTY

Cromwell et al's No. 1 Russell et al, 2,310 ft. from NE and 330 ft. from NW, Sec. 80, Blk. 1, W.&N.W. Sur. .. Drlg. 300 ft.
Douglas et al's No. 1 Wheat & Ramsey, 330 ft. from SE and 2,310 ft. from SW, Sec. 83, Blk. 1, W.&N.W. Sur. .. Cellar.
Eppenauer et al's No. 1 Allen, 2,310 ft. from NE and NW lines, Sec. 90, Blk. 1, W.&N.W. Sur. ..... Total depth 4,309 ft.; flowed 155 bbls. 24 hrs. ending Dec. 10.
Henshaw et al's No. 2 Reagan & McElwain, 1,650 ft. from SW and 990 ft. from SE, Sec. 84, Blk. 7, W.&N.W. Sur. ..... Rig.
Lockhart & Co.'s No. 3 Bowen & Wells, 330 ft. from NE and SE of Sec. 92, Blk. 1, W.&N.W. Sur. ..... Shut down 3,383 ft.
Lockhart & Co.'s No. 2 fee, 676 ft. S, 330 ft. W, Sec. 91, Blk. 1, W.&N.W. Sur. ..... Drlg. 810 ft.
Lockhart's No. 1 Hubbard, 6,930 ft. from NE and 330 ft. from SE, Sec. 83, Blk. 33, H.&T.C. Sur. ..... Moving in material.
Lockhart & Co.'s No. 3 Hubbard, 1,650 ft. from NE line, 330 ft. NW line of Sec. 33, H.&T.C. Sur. ..... Rigged up and shut down.
Martin et al's No. 1 Wheat, 2,310 ft. from NE and 330 ft. from NW, Sec. 73, Blk. 1, W.&N.W. Sur. ..... Location.
Miller et al's No. 1 Chapman, 225 ft. from NW and 285 ft. from SW line, Sec. 71, W.&N.W. Sur. ..... Shot with 175 qts. 4,285-4,325 ft.; 100 ft. fluid in hole; will drill deeper; total depth 4,326 ft.
Rush et al's No. 1 Wheat, 330 ft. from NW and SW, Sec. 77, Bk. 1, W.&N.W. Sur. ..... Cellar.
Slagel Drlg. Co.'s No. 1 Cartwright et al, 2,310 ft. from S and 990 ft. from W, Sec. 1, Blk. 57, Twp. 1, T.&P. Sur. ..... Drlg. 150 ft.
California Co.'s No. 5 Reagan & McElvain, 990 ft. from NW and 330 ft. from NE of Sec. 84, Blk. 1, W.& N W. Sur. ..... Cem. casing 4,112 ft.
California Co.'s No. 6 Reagan & McElvain, 330 ft. from SW and 1,650 ft. from SE, Sec. 84, Blk. 1, W.&N.W. Sur. ..... Drlg. 2,895 ft.
California Co.'s No. 7 Reagan & McElvain, 3,033 ft. from SE and 1,014 ft. from NE of Sec. 84, Blk. 1, W.& NW Sur. ..... Rig up.

MENARD COUNTY

Barnett et al's No. 3 Callan City Co., 330 ft. from S and W, Sec. 1, B.S.&F. Sur. ..... Underreaming 1,940 ft.
Barnett et al's No. 4 Callan City Co., 1,200 ft. from S and 2,200 ft. from W, Sec. 1, B.S.&F. Sur. ..... Machine.
Priest's No. 1 Sorrell, 1,000 ft. from E and 200 ft. from S cor., Sec. 132, E.L.R.R. Sur. ..... Shut down 2,490 ft.; moving in casing.

MIDLAND COUNTY

Kerwin et al's No. 1 Mathen, 2,310 ft. from N and 335 ft. from W line, Sec. 40, W. L. Gray Sur. ..... Drlg. 3,986 ft.

MITCHELL COUNTY

Morrison et al's No. 2 Morrison, 2,390 ft. from N and 660 ft. from E of Sec. 31, Blk. 28, Twp. 1n, T.&P. Sur. ..... Shut down 3,112 ft.; top pay 3,038-75 ft.; shot 270 qts. 3,020-92 ft.; swabbed 40 bbls. in 24 hrs.
Morrison et al's No. 1 Poe et al, 660 ft. S and 1,980 ft. W, parallel to section lines of NE cor., Sec. 8, Blk. 27, T.&P. Sur. ..... Spudded 10 ft. and shut down.

PECOS COUNTY

Bell et al's No. 1 Eaton, 2,310 ft. from NE and 990 ft. from SE, Sec. 33, Blk. 3, H.&T.C. Sur. ..... Total depth 530 ft.; pulling 10-in.
Bell et al's No. 1 Schraff & Blackman, 2,310 ft. NE and 330 ft. NW of E cor., Sec. 27, Blk. 3, H.&T.C. Sur. .. Drlg. 1,615 ft.
Culberson Bros.' No. 1 Tippett (Humble), 150 ft. S and 843 ft. E of C Sec. 40, Blk. 194, G.C.&S.F. Sur. ..... Location.
Culberson Bros.' No. 2 Tippett (Humble), 150 ft. S and E of C Sec. 40, Blk. 194, G.C.&S.F. Sur. ..... Location.
Dittman's No. 1 Jackson, 2,310 ft. from NE and 330 ft. from NW, Sec. 28, Blk. 3, H.&T.C. Sur. ..... Moving in machine.
Dittman's No. 2 Eaton, 990 ft. from SW and 330 ft. from SE, Sec. 35, Blk. 2, H.&T.C. Sur. ..... Location.
Dittman's No. 1 Eaton, 330 ft. from NE and SE, Sec. 37, Blk. 3, H.&T.C. Sur. ..... Drlg. 653 ft.
Humble Oil & Ref. Co.'s No. 1 Kokernot, 1,320 ft. from N line and 1,467 ft. from W line of Sec. 227, Blk. 10, G.H.&S.A. Sur. ..... Tools in hole 6,170 ft.
Lewis & Slagel's No. 1 Bell, 330 ft. from N and W of SE, Sec. 13, Blk. 30, Twp. 1s, T.&P. Sur. ..... Location.
Mann's No. 1 Schraff & Blackman, 3,000 ft. from SW and 990 ft. from SE, Sec. 32, Blk. 3, H.&T.C. Sur. .... Spudded 150 ft.
McCurdy & Brown's No. 2 Tippett, 150 ft. from N and W of SE, Sec. 40, Blk. 194, G.C.&S.F. Sur. ..... Location.
McCarty Oil Co.'s No. 3 Gray, 700 ft. from N and 2,260 ft. from W, Sec. 591, G.C.&S.F. Sur. ..... Shut down 1,437 ft.; est. 3,000,000 ft. gas.
Messenger et al's No. 1 Buts, 1,330 ft. from NW and 1,170 ft. from SW, Sec. 54, Blk. 10, H.&G.N. Sur. .... Drlg. 1,215 ft.
Mid-Kansas O. & G. Co. et al's No. 1-A Sellman, 250 ft. from S and 330 ft. from W, Sec. 12, Blk. 194, G.C.&S.F. Sur. ..... Rig up and drilling water well.
J. R. Miller et al's No. 1 Bennett, 359 ft. W of CWL, Sec. 1, Blk. 119, G.C.&S.F. Sur. ..... Shut down 1,700 ft.
J. D. O'Mara's No. 1 Bennett, Sec. 592, 1,460 ft. from S 150 ft. from E, G.C.&S.F. Sur. ..... Total depth 1,230 ft.; top pay 1,089 ft.; plugged back to 1,185 ft.; will drill deeper.
J. D. O'Mara's No. 1 Streety, S of Sec. 1, W. P. Howard Sur. ..... Shut down 2,210 ft.; fishing.
Penn Oil Co. et al's No. 1 Alvis, 2,358 ft. from S and 1,327 ft. from W, Sec. 155, Blk. 3, T.&P. Sur. ..... Cable tools; location.
Perren Oil Co.'s No. 2 Eaton, C of E of W, Sec. 27, Blk. 3, H.&T.C. Sur. ..... Fishing 1,765 ft.
R. W. Porpus et al's No. 1 State Land, 330 ft. S and W lines of NE, Sec. 28, Blk. OW, T.C. Sur. ..... Spudded and shut down.

Pure Oil Co.'s No. 1 Harrison, 2,310 ft. from N and 330 ft. from W of Sec. 203, Blk. 3, T.&P. Sur. ..... Shut down 5,000 ft.
Riser & White's No. 1 Riser, 2,297 ft. from S and 997 ft. from E of Sec. 34, Blk. 12, H.&G.N. Sur. ..... Drlg. 500 ft.
Side & Side's No. 1 Blackstone & Slaughter, C NW, Sec. 34, Blk. A-2, T.C. Sur. ..... Drlg. 3,200 ft.
Schilling & Slaughter's No. 1 Yates, 1,580 ft. N and 150 ft. E of NW cor. Runnels County School Land, but located in Sec. 70, Blk. 1, I.&G.N. Sur. ..... Shut down 337 ft.
Southern Crude Oil Pur. Co.'s No. 1 Scharff & Blackman, 4,550 ft. 40° E and 330 ft. 50° W of most southerly cor. Sec. 38, Blk. 3, H.&T.C. Sur. ..... Drlg. 980 ft.
California Co. et al's No. 1 Thomas, 990 ft. from NW and SW, Sec. 31, Blk. 34, H.&T.C. Sur. ..... Location.
The Texas Company's No. 1 Wright, 660 ft. S and E of NW cor., Sec. 9, Blk. 131, T.&St.L. Sur. ..... Shut down 3,504 ft.
Warner's No. 1 Webb, 2,550 ft. from NW and 6,100 ft. from NE of Sec. 311, Abst. 756, C, McGinley Sur. ..... Drlg. 2,685 ft.
Williams & Moran's No. 1 Heiner Est., 450 ft. from N and 2,490 ft. from W of Sec. 390, G.C.&S.F. Sur. ..... Drlg. 1,350 ft.

REAGAN COUNTY

Big Lake Oil Co.'s No. 5-C University, 625 ft. from S and 900 ft. from W of Sec. 25, Blk. 9 ..... Coring 8,282 ft.
Big Lake Oil Co.'s No. 6-C University, 1,120 ft. S and 1,100 ft. from W, Sec. 25, Blk. 9 ..... Location.
Slick estate et al's No. 1 August, C SE, Sec. 1,216, G.C.&S.F. Sur. ..... Fishing 2,570 ft.
Texon O. & L. Co.'s No. 4-B University, 1,130 ft. from N and W of Sec. 26, Blk. 9 ..... Drlg. 7,566 ft.

REEVES COUNTY

R. T. Hansford's No. 1 Williams, 150 ft. from S and W, Sec. 17, Blk. 6, H.&G.N. Sur. ..... Shut down 380 ft.
Riggs & Smith's No. 1 Lee Monroe, 2,190 ft. from NE and 330 ft. from NW line, Sec. 34, Blk. 8, H.&L.N. Sur. ..... Shut down 176 ft.
Salsbury & Gregory's No. 1 Young Bell, 1,170 ft. from N and 330 ft. from NW line, Sec. 34, Blk. 7, H.&L.N. .... Temporarily abandoned.
Lee O. White et al's No. 1 Hershersor, 330 ft. from N and W lines of Sec. 5, Blk. 51, Twp. 10, T.&P. Sur. .... Shut down 4,415 ft.
California Co.'s No. 2 Kioh & Rumsey, 990 ft. from S and 1,520 ft. from E, Sec. 11, Blk. 54, Twp. 4, T.&P. ..... Location.

RUNNELS COUNTY

Dutton et al's No. 1 Dean, 5,475 ft. from NE and 1,048 ft. from NW in J. Heil Sur. No. 419 ..... Drlg. 1,850 ft.

SCHLEICHER COUNTY

Delmar Oil Co.'s No. 1 O'Harrow, C NW, Sec. 56, Blk. 1, G.H.&S.A. Sur. ..... Drlg. 5,680 ft.
Texas & Gant's No. 1 Allison, 1,320 ft. N and E of SW cor. of Sec. 37, Blk. K, G.H.&S.A. Sur. ..... Shut down 3,960 ft.
Wesner et al's No. 1 Nicks, 2,310 ft. from N and 2,362 ft. from E of Sec. 77, Blk. LL, T.C. Sur. ..... Shut down 750 ft.
Westyde et al's No. 1 Meador, 1,320 ft. from S and E of Sec. 661, G.C.&S.F. Sur. ..... Location.
George Wilson's No. 1 Page, Sec. 40, Blk. L, 1,290 ft. from N, 1,470 ft. from W, G.H.&S.A. Sur. ..... Shut down 5,027 ft.

SCURRY COUNTY

Byrd & Harmon's No. 1 Murphy, Jr., 320 ft. from N and E of Sec. 114, Blk. 97, H.&T.C. Sur. ..... Pumping 20 bbls. per day for fuel oil; total depth 3,501 ft.
Camp Spring Oil Co.'s No. 1 Strayhorn, 330 ft. from S and 1,980 ft. from W of Sec. 154, Blk. 3, H.&G.N. Sur. Shut down 875 ft.
I. D. Mimms et al's No. 1 J. J. Koonsman, Sec. 216, Blk. 2, H.&T.C. Sur. ..... Spudded and shut down.
G. E. Dickman and R. B. Pender et al's No. 1 F. C. Davis, 1,000 ft. N and 1,770 ft. W of SE cor. of Sec. 275, Blk. 2, H.&T.C. Sur. ..... Shut down 4,970 ft.

SAFETY

DROP FORGED COMBINATION REVERSIBLE

CLAMP

Drop forged steel for greatest possible strength.

Reinforced loop at load point.

Reversible for plain or upset A.P.I. pull rods.

TESTED TO 50 TONS WORKING LOAD

Catalog on request.

DISTRIBUTED BY SUPPLY STORES

SURFACE EQUIPMENT CO., Inc.

P. O. BOX 1698 TULSA, OKLAHOMA

Scurry County Oil Exchange's No. 1 Earnest, 2,310 ft. from N and W, Sec. 68, Blk. 3, H.&G.N. Sur. ..... Cellar.
Seifert & Dibble's No. 1 T. M. Blackburn, 2,310 ft. from N and 2,310 ft. from W line of Sec. 155, Blk. 97, H.&T.C. Sur. ..... Drlg. 1,469 ft.
Mid-Kansas O. & G. Co.'s No. 1 Peckham, 330 ft. from S and W of R. N. Miller Sur. ..... Shut down 4,500 ft., contract depth.

STERLING COUNTY

Beesley et al's No. 1 Foster, 2,940 ft. N and 300 ft. W of SW cor., Sec. 7, Blk. 22, H.&T.C. Sur., but in Sec. 16, Blk. 21, Twp. 4s, T.&P. Sur. ..... Shut down 515 ft.

TAYLOR COUNTY

Eastland Oil Co. et al's No. 2 Hunter, 3,418 ft. from S and 2,174 ft. from E of William R. Ellis Sur. ..... Drlg. 2,500 ft.
John B. Jameson's No. 1 Webb, 1,170 ft. S and W of NE cor., Sec. 46, Lunatic Asylum Land ..... Drlg. out cement 6,251 ft.
Hucony Oil Co. et al's No. 1 Richie, C SE, Sec. 10, Blk. A. S.P. Sur. ..... Underreaming 2,600 ft.
Sanger et al's No. 1 City of Abilene, 330 ft. from S and 1,400 ft. from E of Sec. 66, Blind Asylum Land ..... Drlg. 1,895 ft.
Sanger O. & R. Co.'s No. 1 Osborn, 330 ft. from SW of SE, Sec. 68, Blind Asylum Land ..... Rigged up and shut down.

TERRELL COUNTY

Big Bend Oil Co.'s No. 1 Bassett, C NW, Sec. 155, Blk. D, M.-K.-T. Sur. ..... Shut down 2,669 ft.
Keck Pecos Trust Co.'s No. 1 Hamilton, C, Sec. 6, Georgetown Ry. Sur. ..... Shut down 3,150 ft.
Milham Corp. of Texas' No. 1 R. M. Bassett et al, 150 ft. from N line and 2,640 ft. from E and W lines of Sec. 76, Blk. Y, James Bass Sur. ..... Location.
Miller Bros.' No. 1 Allison & Burke, C NW cor., Sec. 10, Blk. 176, T.&P. Sur. ..... Shut down 120 ft.
Mrs. J. B. McPhees' No. 1 Sam Belt, C, Sec. 16, Blk. D-7, E.L. Sur. ..... Shut down 880 ft.; moved off machine.
Transcontinental Oil Co.'s No. 1 Goode, 2,152 ft. from E and 330 ft. from S, Sec. 26, Blk. 161, G.C.&S.F. Sur. .... Drlg. out cement; 8¼-in. casing set at 4,467 ft.; total depth 5,229 ft.
Woodley & Jones' No. 1 Pankenham, C SE NW, Sec. 43, Blk. B-2, C.C.S.D.&N.G. Sur. ..... Shut down 640 ft.

TOM GREEN COUNTY

Belding & Dutton's No. 1 Nersworthy, 2,640 ft. from S and 587 ft. from E of John McNeese Sur. ..... Shut down 760 ft.; show oil and gas 725 ft.
Cosden Oil Co.'s No. 1 William Anson, 2,310 ft. S, 330 ft. W of NE cor., Sec. 20, Blk. 24, H.&T.C. Sur. ..... Location.
Fitzgerald & Tallaferro's No. 1 Bennett, C SW, Sec. 1,628, E. H. Dinger Sur. ..... Plugged back to 2,405 ft. to straighten hole; shut down 2,447 ft.
Mintex Oil Co.'s No. 1 Campbell Est., 446 ft. from S and 630 ft. from W of Sec. 180, Dist. No. 11, S.P. Sur. .... Shut down 1,835 ft.
Phillips Pet. Corp.'s No. 1 Gulden, 1,250 ft. from N and 1,583 ft. W of Sec. 77, James Webb Sur. ..... Shut down 5,010 ft., contract depth; may drill deeper.
Pratt & Hancock's No. 2 Lewis, 100 ft. N and 330 ft. E of most northerly SW cor. of Joshua S. Grant Survey No. 2 ..... Drlg. 130 ft.

UPTON COUNTY

Duffey et al's No. 2 McClintic, 330 ft. from N and 1,650 ft. from E, Sec. 206, Blk. F, C.C.S.D.&R.G.N.G. ..... Rig.
Humble O. & R. Co.'s No. 1 Damron et al, 330 ft. from N and W, Sec. 192, Blk. F, C.C.S.D.&R.G.N.G. Sur. .... Drlg. 572 ft.
R. R. Penn & Shell Pet. Corp.'s No. 1 Halamicek, C SE Sec. 93, Blk. D, C.C.S.D.&R.G.N.G. ..... Rig up.
T. P. Coal & Oil Co.'s No. 1 King Ranch Oil & Lignite Co., 2,310 ft. from N and 990 ft. from W, Sec. 28, Blk. 2, M.-K.-T. Sur. ..... Drlg. 1,925 ft.
Weekly Oil Corp.'s No. 1 Shirk, 468 ft. from S and 2,317 ft. from E, Sec. 15, Blk. 3, M.-K.-T. Sur. ..... Waiting on cement to set 2,500 ft.
Weekly Oil Corp. et al's No. 1 McClintic, 1,650 ft. from N and 330 ft. from E, Sec. 206, Blk. F, C.C.S.D. &R.G.N.G. Sur. ..... Drlg. 750 ft.

VAL VERDE COUNTY

Independent Operators' No. 1 Whitehead, SE SE, Sec. 10, Blk. 4, L&G.N. Sur., elev. 1,175 ft. ..... Shut down 5,360 ft.
O. O. Owens' No. 1 Mills, Sec. 128, Blk. 1, I.&G.N. Sur., elev. 2,130 ft. ..... Fishing 6,780 ft.
Phantom Oil Co.'s No. 1 Ingram, 175 ft. W of E line and 300 ft. N of S line, Sec. 33, Blk. D-8, E.L. Sur. ..... Shut down 3,035 ft.
Valvert Oil Corp.'s No. 1 Bassett, C NE, Sec. 47, Blk. Y. Shut down 4,009 ft.

WARD COUNTY

Alpine Oil Co.'s No. 2 Boogher, 2,200 ft. from NW and 1,800 ft. from SW lines, Sec. 11, Blk. 5, H.&T.C. Sur. .. Drlg. 2,020 ft.
Black & Massey's No. 1 Allen, 2,108 ft. from NW and 2,100 ft. from SW, Sec. 11, Blk. 5, H.&T.C. Sur. ..... Drlg. 1,730 ft.
Empire Gas & Fuel Co.'s No. 1 John Sealy estate, 330 ft. from S and 1,650 ft. W of NE cor., Sec. 5, Blk. F, T.&M.M. Bros. Sur. ..... Cem. 10-in. casing 1,346 ft.
Grand Falls Oil Co.'s No. 1 Blair & Boogher, 500 ft. from SW and 1,160 ft. from NW, Sec. 11, Blk. 5, H.&T.C. Sur. ..... Drlg. 1,075 ft.
Gulf Prod. Co.'s No. 3 Wristen Bros., 220 ft. NE of SW and 220 ft. SE of NW, Sec. 18, Blk. 5, H.&T.C. Sur. .... Show gas 1,960-70 ft.; filling up with sulphur water 2,520-77 ft.; salt water 2,515 ft.; plugged back to 2,477 ft.
Kugle et al's No. 1 Wallace, 330 ft. from SE and 1,263 ft. from SW, Sec. 19, Blk. 34, H.&T.C. Sur. ..... Drlg. 670 ft.
Magnolia Pet. Co.'s No. 1 Sealy, 330 ft. from S and E of NE cor., Sec. 46, Blk. 2, G.M.M.B.&A. Sur. ..... Flowing average 26 bbls. per day; total depth 3,065 ft.
Magnolia Pet. Co.'s No. 1 Sealy (Atlantic), 2,310 ft. from S and 1,650 ft. from E Sec. 45, Blk. F, G.M.M.B.&A. Sur. ..... Building rig.
R. F. Owens' No. 1 Johnson, 100 ft. from NE and 1,100 ft. from SE of Sec. 8, Blk. 33, H.&T.C. Sur. ..... Shut down 1,200 ft.
Rector Oil Co. et al's No. 1 Boogher, 1,782 ft. from NW and 1,800 ft. from SW, Sec. 11, Blk. 5, H.&T.C. Sur. .. Shut down 811 ft.
Rickford & Smith's No. 1 Johnson, 120 ft. NE and 175 ft. SE of N cor., Sec. 7, Blk. 32, H.&T.C. Sur., but located in Sec. 11, Blk. 5, H.&T.C. Sur. ..... Shut down 782 ft.
California Co. et al's No. 1 Lanham, 990 ft. from NE and SE, Sec. 35, Blk. 34, H.&T.C. Sur. ..... Building rig.
California Co.'s No. 1 Gordon, 330 ft. from NE and SE, Sec. 6, Blk. 34, H.&T.C. Sur. ..... Location.
T. P. Coal & Oil Co.'s No. 1 James, 330 ft. from SW and SE, Sec. 5, Blk. 34, H.&T.C. Sur. ..... Shut down 975 ft.
Shipley et al's No. 5 Hayzlett, assume common line Secs. 16 and 17 in N and S, 220 ft. S and 1,910 ft. W, Sec. 17, Blk. 5 ..... Standard rig.
Shipley et al's No. 1 Monroe, 330 ft. SE, SW, Sec. 3, Blk. 1 ..... Drlg. 3,425 ft.
T. P. Coal & Oil Co.'s No. 1 Barker, 330 ft. from SW and NW of Sec. 27, Blk. B-29, Public School Land ..... Shut down 2,425 ft. for storage.
California Co.'s No. 1 Allen, 2,310 ft. from NE and 330 ft. from SE, Sec. 30, Blk. 34, H.&T.C. Sur. ..... Drlg. plug. 2,322 ft.

WINKLER COUNTY

Magnolia Pet. Co.'s No. 1 Bashara, 1,650 ft. from S and 2,310 ft. from W, Sec. 17, B-3, P.S.L. Sur. ..... Shut down 935 ft.
Magnolia Pet. Co.'s No. 1 Walton, 2,310 ft. from N and W Sec. 16, Blk. 77, P.S.L. ..... Location.
A. W. Phillips' No. 2 Brown et al, 2,000 ft. S and W of NE, Sec. 4, Blk. B-5, Public School Land ..... Shut down 3,506 ft.
Liner Drlg. Co.'s No. 1 Campbell, 330 ft. from N and E cor., Sec. 2, Blk. B-5 ..... Shut down 4,639 ft.

Oil Field Equipment and Supplies

COUNTERBALANCE WEIGHT PERMITS SMOOTH STROKE

The Ideco-Boykin pumping counterbalance weight (Young patent) provides a simple and effective way of balancing

the weight of the rods and tubing on pumping wells. It is especially applicable to deep well pumping and permits a smooth and even stroke.

The device is designed for use with standard 12-inch and 14-inch walking beams. It is constructed in a variety of weights. Additional weight elements as shown in the photograph, may be added to give any weight desired. These are made so that they can be handled easily.

The counterbalance weight is provided with rollers which serve to facilitate moving it to the exact position along the beam for the most efficient operation. The rollers make it a simple matter for one man to move it along the beam. Two set screws provide a means of fastening the counterweight at any desired position. The screws are locked in place after the weight has been securely fastened to the beam, by means of a safety locking rod, which prevents the screws from loosening as a result of vibration or other causes.

When pulling the rods or tubing, the weight can be moved to a position immediately over the saddle and anchored so that the walking beam may be swung out of the line of operation. These weights are manufactured at the Boykin plant of the International Derrick & Equipment Co., at Beaumont, Tex.

DIESEL UNITS USED ON FLOATING POWER PLANT

Two Cooper-Bessemer Diesel-electric generating sets were shipped recently from Grove City, Pa., to enter a novel service for The Texas Company at Terrebonne Bay, La. The units are to be installed on a barge which will function as a floating power plant, serving requirements of a motor-driven rotary drilling rig ashore, with the additional advantage of being capable of transfer from one anchorage to another as occasion demands. When one job is completed, the Diesel-electric barge will move on to another location to establish power connections and serve there.

The engines are rated 250 brake horsepower with two A.C. generators direct-connected to provide required current. Usually only one of the Diesels will be in use operating the rotary rig, while the other "stands by" to aid in meeting special demands or to substitute in case of trouble.

Such an installation can be used also as an emergency power station for tidewater operations of The Texas Company.

AMONG THE EQUIPMENT HOUSES

Jack V. Thomas, of the Natural Gas Equipment Co., is in the Mid-Continent territory working out details of distribution with the Webster Engineering Co., which handles the former's line of appliances in that area.

J. B. Downey, Phoenix, Ariz., has been appointed Arizona sales representative for the entire line of centrifugal pumping equipment manufactured by Dayton-Dowd Co., Quincy, Ill.

In line with custom, seven members of the Axelson Manufacturing Co.'s Mid-Continent sales organization have been sent to the Los Angeles plant for a period of intensive instruction. Heading this year's group is Mills Hammett, Mid-Continent manager of the Axelson organization. The men will be in California 10 days to two weeks familiarizing themselves with manufacturing methods, new productions and California field developments.

Harold S. Bard has been appointed district sales representative of the Reading Iron Co. with offices at 1714 Engineering Building, Chicago, succeeding R. A. Griffin resigned. Mr. Bard has been with Reading seven years.

Lieut. Joseph L. Thompson of the Ninty-seventh Aero Squadron, United States Army, Dodd Field, Fort Sam Houston, Tex., has taken a position with the Moran Drilling Co. as pilot of its Lockheed cabin plane.

BORING MACHINE REALLY A HORIZONTAL ROTARY DRILL

The Young road crossing boring machine, made by the Young Engine Corp., Canton, Ohio, is fundamentally a horizontal rotary drill, using the pipe or casing that is to be installed and which remains in the ground when the job is completed, as the medium for carrying the rotating cutter-head.

In operation the boring machine is placed in the ditch and the power unit is set up on the bank at the side. Power is transmitted by means of an adjustable drive shaft with universal joints to the upper sprocket of a chain and sprocket drive on the boring machine which can be set at the desired height. This system of power transmission is flexible and adjustable to operating conditions.

The pipe or casing to be installed is bolted to the rotating hollow driving sleeve by means of the 8"x13½" forged steel pipe flanges.

A suitable cutter head is attached (usually welded) on the forward end of the casing.

The rotating hollow sleeve is forced forward by jacks and the rotating power is applied to it by means of a worm-gear reduction. The combined rotating and forward motion of this sleeve forces the pipe into the embankment. Dirt is removed through the hollow sleeve by means of a spoon attached to a long pipe handle, or by water, where conditions are favorable.

After the casing has entered the embankment a distance of about 6 feet, or, in other words, when the rotating hollow sleeve has advanced forward to its full extent, the flange of the driving head is unbolted from the pipe or casing and a five and one-half foot flanged "pup" or extension joint is inserted between the rear end of the pipe and the flange of the sleeve, which has been backed to starting position. This cycle of operation is continued, additional extension 8"x5'6" joints being inserted at each full forward movement of the rotating hollow sleeve until the entire pipe or casing has been installed.

Fifty feet of 18-inch pipe is said to have been installed under the Wheeling & Lake Erie Railroad tracks in Canton, Ohio, for the East Ohio Gas Co. with a Young boring machine in four hours.

CHAIN BELT CO. MAKES A. R. ABELT SECRETARY

A. R. Abelt, elected secretary of the Chain Belt Co. of Milwaukee, Wis., has been with the company 24 years, and for

A. R. Abelt

the last eight years has been in charge of chain sales. He will continue to direct the sales of chain, a basic division of the company.

VALVE LIFE PROLONGED BY GRADUAL SEAL-OFF

When the blow of a valve in sealing off is struck on the sealing surface of the valve seat the life of the seat and of the insert is shortened. In the Mission valves, introduced by the Mission Sales Co., 2416 Railroad Street, Houston, Tex., the blow is taken on a steel bushing placed in the cross rib of the seat, thus avoiding any metal-to-metal contact on the sealing surface. The rubber insert is thus held one-eighth inch from the sealing surface, being pressed into a seal by the pressure with no weight of metal upon it.

The seal-off is made gradually instead of by sudden impact. At the same time, the rubber, through its resilience, is designed to make a perfect shutoff, even though foreign particles are on the sealing surface, without causing the particles to cut the seat or damage the rubber.

Of importance to those who are using pumps of various makes is the fact that the caps, bottom plates, nuts, bushings, and rubber inserts are all interchangeable thus allowing savings in inventory.

The Mission valve, allowing fluid passage equal to, or greater than, the standard specifications of the pump manufacturers, is said often to increase the efficiency of the pump.

The seat is made of alloy steel, heat-treated and machined accurately to fit each make of pump. The valve cap and plate are made of alloy steel drop forgings. The stem is made of a high-grade low-carbon steel to accurate specifications to fit all makes of pumps.

The nut and bushing being the principal wearing parts on the valve, are made of special steel specially heat-treated

The rubber insert, made of high grade rubber, is designed for long service under high pressures where much sand and gravel are encountered. In many cases, under high pressures, the rubber insert was not changed during a 90-day period of continual service, according to the manufacturers.

The Brown Instrument Co., Philadelphia, Pa., is mailing a 16-page catalog describing its line of electric indicating and recording tachometers.

Oil Field Equipment and Supplies

GE INTRODUCING MOTOR OF LARGER HORSEPOWER

The General Electric Co. has extended its line of type MTO two-speed oil-well pumping motors to include a new and larger rating, 75/35 horsepower. The other ratings already available and in extensive use are 35/15, 50/20 and 55/25 horsepower. The new 75/35 horsepower motor has all the characteristics of the other motors of this line. It is designed for 440 volts and suitable for operation on three-phase circuits, either 50 or 60 cycles. It operates on a six-pole connection on high speed and a 12-pole connection on low speed, giving synchronous speeds of 1,200/600 r.p.m. on 60 cycles and 1,000/500 r.p.m. on 50 cycles.

The low-speed connection is used almost exclusively for individual well pumping. The high-speed connection is used for all other service work at the well, such as pulling rods and tubing, bailing, etc. The motor is of the wound-rotor type with six collector rings, thus enabling speed variation to be obtained on both the high-speed and low-speed connections, using the same control equipment in either case.

One of the features of the entire list, including the new motor, is the high maximum running torque on the high-speed connection, which is approximately 450 to 500 per cent of full load torque. This high torque enables the motor to develop the power necessary to relieve the well readily of emergency conditions which might otherwise be serious, such as the removal of rods or tubing which have been sanded in. It is backed up by a high thermal capacity in the motor which gives it the ability to handle heavy overloads without overheating.

Another feature which is provided on the entire line of these motors is the extra binding wire on the rotor to make its operation safe at a speed of 2,400 r.p.m., thus protecting the motor against high coasting speeds when lowering tubing into the well.

The motor may be provided with enclosed type of collectors for operation in explosive gases, if such protection is desired. Standard motor frame construction and sleeve bearings are used, the latter effectively sealed against the entrance of foreign matter.

As is the standard practice on this line of motors, the control equipment is completely assembled on a very substantial welded, angle iron framework and wired complete at the factory before shipment, so that in making an installation, it is necessary for the purchaser to make only a few connections between the motor, the control unit and the power circuit. All primary wiring is run in conduit in accordance with the best standards. The framework is provided with skids so that it may be readily moved from one location to another.

INVENTORS AND INVENTIONS

Through a new service established by the Industrial Development department of the Chamber of Commerce in Cleveland, Ohio, inventors may submit descriptions of their devices. These are listed in a letter sent to more than 2,000 manufacturers. The man with an idea only is encouraged also, although it is suggested that he protect himself if patents have not been applied for Several hundred persons already have taken advantage of the plan and some are negotiating with Cleveland manufacturers. Those taking advantage of this patent and idea service are urged to submit full details with the first letter. Communications should be sent to Industrial Development Department, Chamber of Commerce, 1704 Terminal Tower, Cleveland, Ohio.

NEW PLANT FOR MAKING BUTLER PRODUCTS IS OPENED

All the devices made in this new factory of the Charles A. Butler Manufacturing Co., Okmulgee, Okla., are covered by patents obtained by Mr. Butler, and many of them are his own inventions.

The company's new factory on the Okmulgee Northern Railroad tracks has 20,000 square feet of floor space, as compared with the 2,000 square feet in the original plant which Mr. Butler founded four years ago and operated alone.

A list of the oil field appliances manufactured by the company includes slip ring casing elevators, slip ring tubing elevators, automatic casing spiders, automatic tubing spiders, clamping up casing spiders and clamps, bit dressing machines, automatic flow pumps, automatic air lift pumps, wire line drilling clamps, cable tool circulating system, deep well drilling machines and chain pipe tongs.

FOR SMALL GASOLINE TANKS

A small floating deck designed for minimizing evaporation losses and fire hazards in vertical gasoline storage tanks under 20 feet in diameter has been developed by the Columbian Steel Tank Co. of Kansas City, Mo. It is simply an air-tight float 8 inches high which rides on the surface of the liquid in storage. Around the rim of the float are tight-fitting strips of asbestos fiber which form a close contact with the tank shell and make an almost airtight seal. Several installations already have been made, all of which are said to be functioning as intended.

NEW HERCULES DISTRIBUTORS

The Hercules Motors Corp. of Canton, Ohio, has appointed four new distributors in Canada and the United States. J. S. Innes, Ltd., of Toronto will represent Hercules in that city and the Tractor & Thresher Co., Ltd., of Saskatoon will distribute Hercules engines and power units in the Canadian Northwest. The E. B. Kelley Co. of New York will represent Hercules in the New York metropolitan area and in addition in Long Island City, Albany, Buffalo, Mount Vernon and Rockville Center, N. Y., and in Newark, N. J. A. H. Krigger & Co. has been named distributor in Pittsburgh, Pa.

"PANTHER" ENGINE ESTABLISHES NEW WORLD'S RECORD

Establishing a new world's record for "nonmaintenance" flights, the MacClatchie "Panther" engine of the monoplane "City of Los Angeles" was stopped November 15, after having been running 378 hours 48 minutes, without being touched according to Joe Nikrent, official observer for the National Aeronautic Association for the flight. The flight was sponsored by J. Warren MacClatchie, president of the MacClatchie Manufacturing Co., and developer of the L-head radial engine.

Fouling of spark plugs was responsible for the end of the flight. When the ship made its final landing the engine was still running.

Instead of refueling in the air, the "City of Los Angeles" landed to take on gas and oil with the motor running. It was refueled 97 times during the test. The picture shows the ship being refueled. Left to right: Captain John A. MacCready, head of the Shell Oil Co. aviation department; Joe Nikrent, official observerer (in background); J. Warren MacClatchie, who sponsored the flight; Jack Severson, chief mechanic, refueling.

MEN KNOWN *in* THE EQUIPMENT FIELD

C. B. Kennedye, familiarly known in the oil industry as "Boots" Kennedye, has acquired an interest in the Metal Forms Corp. of Milwaukee, Wis., and has been elected vice president in charge of sales in all states south and west. The company manufactures interlocking metal forms for all types of monolithic concrete, including special forms for derrick, engine, compressor, still and cracking process foundations.

C. B. Kennedye

Mr. Kennedye, who for the past five years has been president of the Kennedye Plumb Corp., has sold his interest in that company. For 10 years before that he was southwest district manager of the Brown Instrument Co. of Philadelphia. He is also president of the Kennedye Corp. of Chicago, associated with C. B. Dubbs, inventor of the Dubbs cracking process; Frank L. Belknap, F. E. Spencer and L. J. Gary in patents for drilling, production and refining, including a simplified drilling control apparatus.

Mr. Kennedye is said to have been the first to introduce the successful application of pyrometers and other scientific instruments to control endpoint, and probably the first to run for endpoint rather than gravity. Many of the scientific instruments now used in the cracking processes are the result of his research and application.

In the early days Mr. Kennedye worked with such men as Dubbs, Cross, Holmes, Manley, Flemming and Greenstreet. Finding new appliances for proven products adaptable to the oil industry seems to be his job.

CHRISTY TAKES OVER SALES

Arrangements have been completed in accordance with which the Christy Fire Brick Co., St. Louis, Mo., has taken over the entire sales of refractory materials made by the Missouri Fire Brick Co., Vandalia, Mo. Under this plan the Christy Fire Brick Co. will devote its whole attention to refractory problems, sales and service, enabling the Missouri company to devote its whole time to the manufacture of refractory products and the development of new refractories.

NEW LOCATIONS IN TEXAS PANHANDLE AND NORTH AND WEST TEXAS FIELDS

TEXAS PANHANDLE

Carson County

Ryan Consolidated Oil Co.'s No. 1 Jordan-Brown, at the C of the N half of the E half of the NE of Section 83, Block 4, I.&G.N.

Moore County

Shamrock Oil & Gas Co.'s No. 1 W. Coffee-C, 330 feet south and west of the NE cor. of the SE of Section 361, Block 44, H.&T.C.

NORTH CENTRAL AND WEST TEXAS

Archer County

F. Hutcheson's No. 1 E. E. Hildebrand, 750 feet south and 150 feet west of the NE cor. of the west 135 acres of Section 145, Club Ranch Subdivision. Continental Oil Co.'s No. 1 Falls County School Land-D, 200 feet north and 1,246 feet east of the SW cor. of the south 50 acres of Section 13, Falls County School Land, A-130. Dean Brothers' No. 1 W. L. Andrews, 150 feet north and west of the SE cor. of Lot 27, Chambers-Dobbs Subdivision, G. C. Frarley Survey A-129. E. Estergren and others' No. 1 J. W. Hasson, 600 feet north and 150 feet east of the SW cor. of Section 23, Thomas Toby Survey A-643. A. P Nicholson's No. 1 J. J. Speer, 150 feet north and 206 feet west of the SE cor. of the west 40 acres of the south 100 acres of Section 14, W. L. Herring Survey A-168. B. J. Shaw and others' No. 1 A. J. Ikard, 1,950 feet north and 250 feet east of the most southerly SW cor. of the Idard-Coulson & Hutchinson Survey A-756.

Brown County

Prairie Oil & Gas Co.'s No. 1 B. Turner, 5,356 feet south and 7,100 feet east of the NW cor. of the M. Duncan Survey No. 55, being 5,356 feet south and 150 feet west of the NE cor. of the B. Turner 523.1-acre tract.

Cooke County

A. Erlewine's No. 2 R. B. Poteet, 1,000 feet south and 101 feet east of the NW cor. of the J. L. Stephens Survey A-1,001.

Comanche County

L. B. Fain and others' No. 1 C. T. White, 5,600 feet north and 4,200 feet east of the SW cor. of the Asa Hoxey Survey.

Culberson County

Cranfill Brothers & Shoults' No. 1 Mrs. J. P. Seay, 2,310 feet north and east of the SW cor. of Section 45, Block 60, Public School Land.

Eastland County

H. B. Mays and others' No. 2 J. L. Brashear, 500 feet south and 1,850 feet east of the NW cor. of Section 6, E.T. R.R., Block 6.

Hood County

Standard Oil Co.'s No. 2 D. C. Cogdell, 9,722 feet northeast of the southwest line and 2,050 feet northwest of the southeast line of the most northern Thomas Robinson Survey Cert. 1-1,555.

Loving County

The California Co.'s No. 7 Reagan & McElvain, 2,310 feet southeast of the northwest line and 990 feet southwest of the northeast line of Section 84, Block 1, W.&N.W.R.R. C. H. Lockhart's No. 1 F. W. Hubbard, 6,930 feet southwest of the northeast line and 330 feet northwest of the southeast line of Section 83, Block 33, H.&T.C. H. W. Martin and others' No. 1 J. Wheat, 2,310 feet southwest of the northeast line and 330 feet southeast of the northwest line of Section 73, Block 1, W.&N.W.R.R.

Pecos County

Cardinal Oil Co.'s No. 11 Mrs. F. E. Forborg, 750 feet north and east of the SW cor. of Section 539, Arnold & Barrett Survey A-3.

Shackelford County

St. Mary's Oil & Gas Co.'s No. 1 J. H. Elliott, 850 feet north and 250 feet west of the SE cor. of Section 8, Lunatic Asylum Land.

Throckmorton County

J. T. Cumley's No. 1 Mrs. C. M. Keeter, 150 feet north and west of the SE cor. of Section 2,128, T.E.&L. C. J. Kleiner and others' No. 1 S. R. McWhortor, 1,083 feet north and 1,717 feet west of the SE cor. of Section 3,034, T.E.&L.

Ward County

Rector Oil Co. and others' No. 1 Boogher, 1,783 feet southeast of the northwest line and 1,800 feet northeast of the southwest line of Section 11, Block 5, H.&T.C. Gulf Production Co.'s No. 6 Hutchings Stock Association Tr-D, 330 feet south and 990 feet east of the NW cor. of the SW of Section 4, Block F, G.&M.M.B.&A.

Wichita County

R. H. King and others' No. 1 J. N. George, 150 feet south and 748 feet east of the most westerly NW cor. of the O. Farish Survey A-383. Lyon & Manion's No. 1 J. E. McCall, 750 feet south and 150 feet east of the NW cor. of Section 15, Cherokee County School Land, A-33. J. Turner and others' No. 1 W. N. Rogers, 150 feet south and 450 feet east of the NW cor. of the W. N. Rogers 160-acre tract out of Section 15, Tarrant County School Land, A-282. R. R. Clark and others' No. 10 W. P. and J. F. Bickley, 1,650 feet south and 150 feet west of the NE cor. of Section 2, C.&M., A-594. Lambert & Trout's No. 11 W. W. Overby, 296 feet north and 368 feet east of the SW cor. of the John Sharp Survey A-262. Premier Oil & Gas Co.'s No. 1 F. B. Penix, 1,750 feet south and 1,850 feet west of the NE cor. of Section 22, H.&G.N., A-396. Turman Oil Co.'s No. 21 W. T. Waggoner 680 feet north and 300 feet west of the SE cor. of their lease out of Section 148, H.&T.C., A-784.

Young County

C. E. Beavers & Pennells' No. 1 B. L. Cunningham, 150 feet south and west of the NE cor. of Section 2, B.B.B.&C., A-1,456. C. E. Beavers and others' No. 1 C. F. Newman, 150 feet north and 300 feet east of the NE cor. of Section 2, B.B.B.&C., A-1,456, and located in the S. Sallie Survey A-252. F. E. Butler's No. 4 W. T. Finch and others, 150 feet south and 755 feet west of the NE cor. of the S half of the NE of Section 31, T.E.&L. W. H. Clarida's No. 1 S. Bagley, 150 feet south and 450 feet east of the most westerly NW cor. of the J. B. Franklin Survey A-1,429. H. D. Davis and others' No. 1 J. O. and L. Stratton, 150 feet north and west of the SE cor. of the east 50 acres of the J. O. and L. Stratton 100-acre tract out of the S. Sallie Survey A-252. J. Harris and others' No. 1 A. B. Street, 150 feet south and east of the NW cor. of the S half of the NE of Section 601, T.E.&L. W. H. Kerbow's No. 1 J. L. McCord, 150 feet south and west of the NE cor. of the north 80 acres of the SW (A-1,670) of Section 2, B.S.&F. Survey. King Royalties & Bullington's No. 8 J. and C. Graham, 150 feet north and 1,402 feet west of the SE cor. of the north 40 acres of the J. and C. Graham 200-acre tract out of Section 2,249, T.E.&L. Kleiner & Riggs' No. 3 J. F. Larimore, 450 feet north and west of the SE cor. of the west 80 acres of the east 120 acres of the N half of Section 2,246, T.E.&L. Lindsey Drilling Co. and others' No. 1 W. B. Howard, 750 feet north and 150 feet east of the SW cor. of the east 105 acres of the W. B. Howard tract out of Section 3,401, T.E.&L. C. E. Litchfield and others' No. 1 Sullivan and others, 150 feet north and east of the SW cor. of the north 40 acres of the W half of Section 1,918, T.E.&L. Martin & Maer's No. 2 S. R. Jeffery, 150 feet north and west of the SE cor. of the north 20 acres of the E half of Section 50, T.E.&L. J. J. Moran's No. 2 W. B. Howard, 150 feet south and 450 feet east of the NW cor. of the east 25 acres of the south 50 acres of the west 80 acres of the W. B. Howard 260-acre tract out of Section 3,401, T.E.&L. Petroleum Products Co.'s No. 6 J. & C. Graham, 150 feet south and 1,050 feet west of the NE cor. of the south 48 acres of the north 88 acres of the J. and C. Graham 200-acre tract out of Section 2,249, T.E.&L. E. R. Riggs' No. 4 I. M. Kirkland, 770 feet south and 1,250 feet east of the NW cor. of Section 2,249, T.E.&L. H. R. Stastny and others' No. 1 J. G. Hawkins, 450 feet north and 1,700 feet west of the SE cor.

(Continued on Page 167)

The Season's Greetings

ONCE more we approach the time of the year that provides an appropriate occasion for the exchange of greetings and messages of good will.

With the holiday season just ahead, the various members of the "SCHRAMM" Inc., organization extend to each and every one of our many friends and associates a joyous holiday spirit and a hope that the coming year brings to fulfillment many of your hopes and plans.

SCHRAMM INC.

West Chester, Penna.

Representatives in all important cities.

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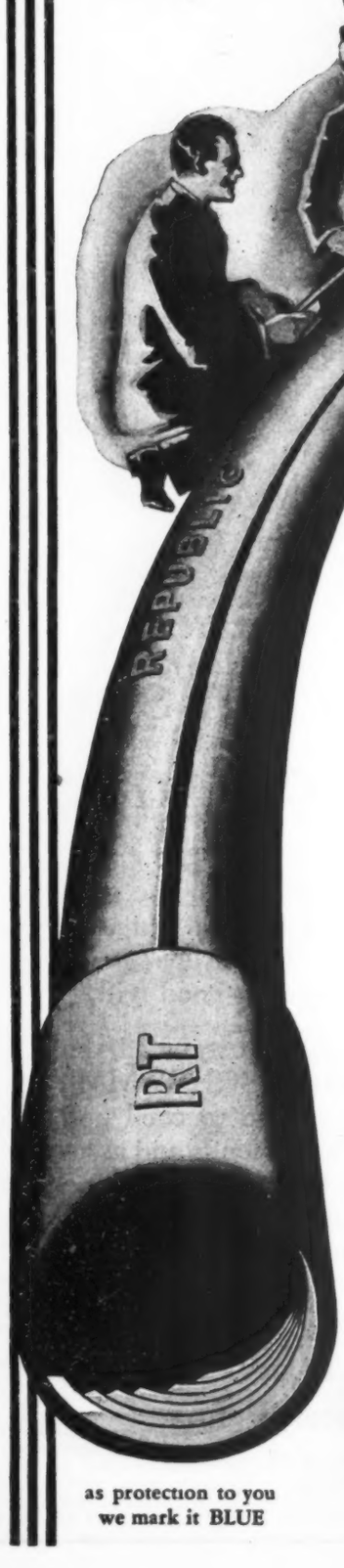

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WILDCAT OPERATIONS IN LOUISIANA-ARKANSAS

(Continued from Page 99)

A. B. Turner, trustee's No. 1 Dave Brown, 320 ft. N, 320 ft. E, SW cor., Sec. 22-15-18 ..... Cmtd. 6⅝-in. 2,164 ft; T.D. 2,178 ft; 14-ft. sand.

PIKE COUNTY

E. R. Henderson's No. 1 Tilyou, 660 ft. W, 500 ft. S, NE cor. NE SE, Sec. 26-8-14 ..... Drlg. 1,850 ft.
E. R. Henderson's No. 1 J. L. Lee, 400 ft. S, 350 ft. E, NW cor. SW SE, Sec. 31-8-24 ..... Derrick.

POPE COUNTY

Ark.-La. P. L. Co.'s No. 2 McFaddin, 685 ft. N, 485 ft. W, SE cor. NE SW, Sec. 15-9-21 ..... Drlg. 2,750 ft.

SCOTT COUNTY

Ark. Valley Gas Co.'s No. 1 Turner, C SE, Sec. 37-5-30 .... Location.
Heavener O. & G. Co.'s No. 1 Riser, Sec. 36-4-26 ..... Sidetracking tools 1,436 ft; T.D. 1,540 ft.

UNION COUNTY

S. B. Hickman's No. 1 Hogg, 330 ft. S, 150 ft. E, NW cor. SE SE, Sec. 35-16-17 ..... Tested S.W. 2,812 ft. top red beds; drlg. 2,837 ft.
H. L. Hunt's No. 5 Swilly, 330 ft. S, 330 ft. W, NE cor., Sec. 28-16-16 ..... W.O.S.R; 2,000 ft. fluid; T.D. 3,689 ft.
H. L. Hunt's No. 6 Swilly, 330 ft. N, 330 ft. W, SE cor., Sec. 21-16-16 ..... 1,000 ft. fluid 4,090 ft; S.W. 2,711 ft; W.O.S.R.
Marine Oil Co.'s No. 3-B Thompson, 330 ft. S, 330 ft. E, NW cor., SE NE, Sec. 10-18-13 ..... Rig up.
Marine Oil Co.'s No. 5-A Thompson, 330 ft. S, 330 ft. W, NE cor. SW NE, Sec. 10-18-13 ..... 2,000 ft. oil 7 ft. sand 3,535 ft; W.O.S.R.
Marine Oil Co.'s No. 1-F Winn, Sec. 10-18-13 ..... Hole full fluid 50% S.W; waiting on air; T.D. 3,604 ft.
Oil Field Corp.'s No. 1 Simmons, 330 ft. S, 330 ft. E, NW cor., Sec. 13-18-13 ..... D.S. test 3,556-3,602 ft; S.W; T.A. 3,602 ft.

VAN BUREN COUNTY

Glenn Kohle et al trustees' No. 1 Scalan, 200 ft. S, 200 ft. W, NE cor. SE NW, Sec. 5-19-13 ..... S.D. 50 ft.

WASHINGTON COUNTY
(Cable tools)

Delbert & Graves' No. 1 Cunningham, Sec. 14-15-32 ..... S.D; W.O. 602 ft.
C. H. Willughby's No. 1 Jones, Sec. 34-16-30 ..... S.D. 1,697 ft.
Lincoln Leaseholding Synd.'s No. 1 Lincoln, Sec. 30-15-32. U.R. 8-in. to T.D. 1,500 ft.
H. H. Taylor et al's No. 1 Runny, C NE SW, Sec. 1-13-29. S.D. 1,650 ft.

YELL COUNTY
(Cable tools)

Tegmeier & Luckett's No. 1 Falcon, Sec. 36-7-31 ..... S.D. 5,710 ft.

EAST TEXAS
BOWIE COUNTY

Joe Burnham et al's No. 1 G. W. Burnett, 150 ft. W, 400 ft. S, NE cor. G. W. Burnett 74 ac., in W. H. Janes Sur. ..... Base Austin chalk 3,095 ft; top red beds 3,145 ft; S.D. 3,150 ft.
Maud-Redwater Oil Co.'s No. 1 Merritt, 175 ft. N, 175 ft. E, SE cor. G. W. Hardige 100-ac. tr. on Floyd Merritt tr. in Y. S. McKinney Sur. ..... S.D. 632 ft.
Lee Timberlake et al's No. 2 Tidwell, 2,510 ft. N, 655 ft. W, SE cor. T. M. Rice Sur. ..... Cmtd. 10-in. 60 ft; S.D.

CAMP COUNTY

McDonald Bros.' No. 1 Tillery, 150 ft. E, 450 ft. S, NW cor. 127-ac. tr., in J. H. Murphy Sur. ..... Cored sand 3,510-30 ft; drlg. 3,600 ft.
Olds & Smith's No. 1 Atheny, 3,056 ft. W E line, 856 ft. S N line, J. C. Byers Sur. ..... Began drlg. Dec. 2; cmtd. 10-in. 80 ft; S.D.

CASS COUNTY

Wesley Morse et al's No. 1 Henderson, 300 ft. E, 1,100 ft. S, NW cor. C. E. Bailey Sur. ..... Derrick.
Phillips Pet. Co.'s No. 1 J. R. Olds, 300 ft. N, 170 ft. E, SW cor., J. A. Stephenson Sur. ..... Cored sandy shale 3,255 ft.
John C. Rogers' No. 1 I. E. Lanier, 573 ft. N, 879 ft. W, SE cor. Lanier 86 ac. in E. E. Welborn Sur. ..... Cored limey shale 2,270-75 ft.

MARION COUNTY

P. E. Hussey's No. 1 A. A. Trammell, Chas. Lockhart Sur. ..... Cmtd. 8-in. 1,884 ft.

RED RIVER COUNTY

D. M. Buffington's No. 1 Hossler, E. Hughhart Sur. ..... S.D. 3,865 ft.
Johnson Pet. Co.'s No. 2 Randolph, Edw. Dean Sur. ..... Swedging 2 joints collapsed 8-in; arranging to cmt. 6⅝-in. and packer 2,182 ft.

SABINE COUNTY

Benedum & Trees Oil Co.'s No. 1 Nona Mills Lbr. Co., Jas. Mason Sur. ..... Cored soft shale 4,665 ft.

SHELBY COUNTY

Chapparell Oil Co.'s No. 2 Holt, Matthew Moore Sur. ..... D.S. stuck 3,097 ft.
G. R. Ridgeway's No. 1 G. D. Parker, 4,930 ft. E, 750 ft. N, SW cor., Jessie McKelvey Sur. ..... S.D; W.O. 3,018 ft.

WILDCAT OPERATIONS IN SOUTHWEST TEXAS

(Continued from Page 50)

BEXAR COUNTY

Eckert & Son's No. 3 J. J. Brehm, 545 ft. from N line, 150 ft. from W line of lease, Sur. No. 58 ..... Location.
Gatlin Oil Co.'s No. 2 I. A. Beck, 150 ft. from SE line, 2,551 ft. from SW line of lease, J. Montez Sur. ..... Location.
Humble Oil & Ref. Co.'s No. 1 Ernest Lamm, near Elmendorf, southern part of county ..... Core test dropped from report.
Long and Craig's No. 1 Sandemer ..... Location.
J. M. Russell's No. 1 F. L. Price, 1,500 ft. to N line, 660 ft. W of tract in Angel Navarro Sur. ..... T. D. 780 ft.; drlg.
Snyder, Reeves et al's No. 2 Glasscock, 12 miles NE of San Antonio ..... T. D. 802 ft.; shut down.
Weibacher et al's No. 1 Ernst, 6,400 ft. S line, 900 ft. W line of J. Christopher Sur. ..... T. D. 720 ft.; shut down.
Penn Oil Co.'s No. 1 Kosub, 600 ft. N of NE cor. of Cooksey tract, then 700 ft. E on 175-ac. tract, J. Riall Sur. ..... T. D. 1,960 ft.; pulling liner.
Somerset Syndicate's No. 1 Lagrange, 54 varas from S and W lines of Carrico tract, Sur. No. 48 ..... T. D. 375 ft.; shut down.
J. E. Weatherall and Ben C. Hillman's No. 1 Talley .... Location.
Russell and Moore's No. 2 Mills, 20 ft. S of No. 1, Angel Navarro Sur. ..... T. D. 1,136 ft.; shut down; repairing rig.
S. M. Terrell et al's No. 1 A. Beadom, 1,100 ft. from E line, 12,000 ft. from N line of John Barber Sur. .... Location.
F. W. Tong's No. 1 Willie Sandemer, 150 ft. from NE and SE lines of the N 20 acres of Willie Sandemer 400-ac. tract, Juan Montez Sur. ..... T. D. 1,040 ft.; drlg. in Taylor.
Bowman and Waldrop's No. 1 Ridder, 1,000 ft. from S and W lines of 688-ac. tract, J. M. Sur. ..... T. D. 1,096 ft.; shut down.

CALDWELL COUNTY

L. H. Wentz' No. 1 W. D. Myrick, 150 ft. W of CEL of 118-ac. tract, B. Lockhart Sur. ..... Location.
Callihan et al's No. 3 W. H. Callihan, 70 ft. N, 65 deg. E of No. 2 ..... T. D. 2,525 ft.; shut down.
Callihan et al's No. 4 W. H. Callihan, 2,000 ft. from N line, 1,945 ft. from W line of tract, John R. Miller Sur. ..... T. D. 2,545 ft.; drlg.
W. D. Anderson's No. 1 Vickery, 150 ft. from N line, 450 ft. from W line of farm, Damon Sur. ..... T. D. 2,745 ft.; comp. for 12 bbls. pumping.
Cargil et al's No. 1 Thomas, 1,505 ft. from E line, 150 ft. from NE cor. of A. W. Jordan tract, J. Alberts Sur. ..... T. D. 830 ft.; shut down.
Blount and Mills' No. 1 McMahan, 275 ft. from SW line, 75 ft. from SE line of 50-ac. tract, J. Pinchback Sur. ..... T. D. 2,164 ft.; shut down for csg.

COLORADO COUNTY

Lewis Slagel Drilling Co.'s No. 1 Henderson, 990 ft. from W line, 2,310 ft. from S line, Sec. 1, Blk. 57, T.&P. Sur. ..... Location.

COMAL COUNTY

Caldwell & Lanier's No. 1 T. J. Byler, 175 varas from W line, 370 varas from N line of 320-ac. tract in the H.E.&W.T. No. 5,894 Sur. ..... T. D. 600 ft.; standing.

DEWITT COUNTY

Penn Oil Co.'s No. 1 Junker, center N half 20-ac. tract, Pettus Sur. ..... T. D. 5,475 ft.; drlg.
H. T. Roe's No. 1 Leinhardt ..... T. D. 2,170 ft.; shut down.
A. H. Gibson et al's No. 1 Von Roeder, 750 ft. N line, 200 ft. E line of farm, W. G. Hill League ..... T. D. 4,020 ft.; dry and abnd.
Sheldon Petroleum Co.'s No. 1 Goehring, center of Goehring tract, H. Stubblefield Sur. ..... Location.

DUVAL COUNTY

Al Buchanan et al's No. 1 Wood-Welder, 1,500 ft. from W line, 500 ft. from N line of Sec. 215 ..... T. D. 600 ft.; drlg.
S. R. C. Oil Co.'s No. 1 Duval County Land Co., Sur. 280 ..... T. D. 108 ft.; drlg.

EDWARDS COUNTY

Phillips Pet. Corp.'s No. 2 A. G. Holman, 320 ft. from N and E lines of SE of tract, C.C.S.D.&N.G.R.G. Sur. No. 25 ..... T. D. 6,660 ft.; drlg. lime.
James Dalgish's No. 2 Peterson, 850 ft. N line, 1,100 ft. W line of Sec. 82, Blk. E in the H.E.&W.T. Sur. .. Location.
James Dalgish-Morrow's No. 1 Peterson, NW cor. Sec. 82, Blk. E, H.E.&W.T.R.R., NE cor. of county in the H.E.&W.T.R.R. Sur. ..... T. D. 5,120 ft.; drlg. lime

FALLS COUNTY

Marlin Oil Co.'s No. 1 Hodges ..... T. D. 2,340 ft.; shut down.
Eddington et al's No. 1 Llewellyn, George Allen Sur., 4 miles SE Chilton ..... T. D. 833 ft.; drlg.

FAYETTE COUNTY

Kelly et al's No. 1 Burke ..... T. D. 834 ft.; shut down.

FRIO COUNTY

A. H. Wray's No. 1 Burns estate, 700 ft. N, 330 ft. E of C Sec. 123, Antone Hupzor ..... T. D. 3,425 ft.; drlg. lime.

GOLIAD COUNTY

A. G. Riemenschneider's No. 1 A. T. Fromme, 275 ft. from N line, 912 ft. W line of 300-ac. tract, P. Dexeter Sur. ..... T. D. 2,330 ft.; shut down.
Gibson Oil Co.'s No. 1 Cyrus Parks, 3,000 ft. S and 2,500 ft. E of NW cor. of Parks ranch, Ferguson Sur. ..... T. D. 4,890 ft.; drlg.
T. B. Slick's No. 1 Poetler, 1,500 ft. from SW line, 900 ft. from SE line of 591-ac. tract, Obid Marshall Sur. ..... T. D. 4,212 ft.; setting csg.

GONZALES COUNTY

Linden Petroleum Corp.'s No. 1 Hensley, 650 ft. from N line, 1,110 ft. from W line Hensley tract, J. Smith Sur.; reinstated ..... T. D. 4,785 ft.; shut down.
Andibus & Cummings' No. 1 R. D. and J. C. Miller, 523 ft. from S line, 1,000 ft. from E line, Ann Williams Sur. ..... T. D. 2,550 ft.; shut down.
Acme Oil & Royalty Corp.'s No. 1 H. K. Weber, 2,525 ft. from NW line, 2,250 ft. from SW line, Wright Sur. ..... T. D. 2,560 ft.; shut down.
Weal Oil Co.'s No. 1 Martin, 360 ft. SE line and SW line of tract, Thomas Moore Sur. ..... T. D. 180 ft.; drlg.
United North & South Development Co.'s No. 1 Wells, 450 ft. each way out of NW cor. of Wells tract, Johnson league ..... T. D. 4,780 ft.; drlg.

GUADALUPE COUNTY

J. S. Suttle's No. 2 A. Baenzinger, 40 ft. E line, 150 ft. S line of tract in the A. O. Mansola Sur., 5½ miles S from Seguin ..... T. D. 2,080 ft.; cored Edwards; showed sulphur water.
Ray Oil Co.'s No. 1 R. Felsing, 300 ft. NW line, 450 ft. NE line 120-ac. tract in the M. Baker Sur. ..... T. D. 900 ft.; shut down.
J. S. Suttle's No. 1 Wurzbach, 3,750 ft. from NW line, 2,450 ft. from NE line of Young Setton Sur. ..... T. D. 2,064 ft.; drlg. Georgetown.
O. K. Emerson's No. 1 C. A. Phillips, center of 80-ac. tract, Velda Sur. ..... Rigging up.
Jones and Erwin's No. 1 O. Forrester, 2,700 ft. from NE cor., 450 ft. from NW line, O. Forrester tract, Pate Sur. ..... T. D. 707 ft.; shut down.
Jones and Erwin's No. 1 Hoese, 150 ft. each way out of NE cor. of 200-ac. tract, J. Leal Sur. ..... T. D. 600 ft.; drlg.

HAYS COUNTY

Hailey & Whittington's No. 1 Heidenrich, 4,900 ft. from NW line, 400 ft. from NE line of farm, Hemphill Sur. ..... T. D. 1,400 ft.; drlg.
San Marcos Oil & Gas Co.'s No. 1 A. H. Alford ..... T. D. 513 ft.; waiting on cement.

JIM HOGG COUNTY

Cole Petroleum Co.'s No. 1 Allen, 150 ft. from W line, 336 ft. from N line, Blk. 7, Sur. No. 23 ..... T. D. 2,360 ft.; drlg.
E. E. Watts' No. 1 Gomez, 4,200 ft. to N line, 1,400 ft. to E line of Sur. 125 ..... T. D. 1,105 ft.; waiting on cement.
J. D. Pulliam's No. 1 Jones, 1,020 ft. W line, 1,020 ft. S line, Share 5-A, Hinojosa Sur. ..... T. D. 2,550 ft.; drlg.
P. H. Wilson's No. 1 Edds, Sur. 210 ..... Rigging up.

JIM WELLS COUNTY

Prairie Lea Prod. Co.'s No. 1 Oppenheimer ..... Spudded and shut down.

KARNES COUNTY

J. F. Morrissey et al's No. 1 Rigsdale, 660 ft. SW of C of NE line of 170-ac. farm in the McCouil Sur. ..... T. D. 2,000 ft.; standing.
J. F. Morrison's No. 1 Cochran, 150 ft. from S line, 500 ft. from E line of tract, D. B. McConnell Sur. ..... Location.
Huribut et al's No. 1 Newberry, 450 ft. SE and SW line of Newberry 428-ac. tract, Carlos Martinez Sur. .... T. D. 2,975 ft.; show gas.

KENDALL COUNTY

Borgett et al's No. 1 Haag, W. Avery Sur. ..... T. D. 1,110 ft.; standing.
Sitten et al's No. 1 Garvin, C of NE of D. L. Richardson Sur., in the D. L. Richardson Sur., 1 mile NE from Kendalia ..... T. D. 900 ft.; standing.
Dixon Oil Co.'s No. 1 Ottmer Behr, W of H.T.&B.R.R. Sur., 3½ miles SE from Sisterdale ..... T. D. 2,360 ft.; drlg.
P. B. Sterling's No. 1 R. J. McCrocklin, 1,350 ft. from N line, 250 ft. from W line of the B. G. Owens Sur., 4 miles W from Kendalia ..... T. D. 1,600 ft.; shut down.
R. M. Perkins' No. 1 J. Lawhorn, Sec. 10, 2,475 ft. E line, 1,488 ft. S line ..... T. D. 705 ft.; drlg.
Permian Oil Co.'s No. 1 Boles, S.A.&M.G. Ry. Sur. No. 542½ ..... T. D. 2,485 ft.; drlg.
Hardy Sitton's No. 1 McMillan, south central part of 180-ac. lease, B. Williams Sur. ..... Location.

KERR COUNTY

Evans et al's No. 1 Love Ranch, 100 ft. from S line Sur. 1,597, 1,000 ft. E of W line of J. Martinez No. 1,594 Sur. ..... T. D. 3,374 ft.; fishing tools.

KINNEY COUNTY

Magnolia Pet. Co.'s No. 1 Whitehead-Wardlaw, 2,640 ft. W line and S line of Melton Valdez grant ..... T. D. 4,475 ft.; drlg.
Mardon Oil Co.'s No. 2 Jim Clamp ..... T. D. 1,389 ft.; standing.

KIMBLE COUNTY

C. L. Bryant et al's No. 1 Lambert, 7,700 ft. N and W lines of F. Lotta Sur. ..... T. D. 850 ft.; standing.
Kamon et al's No. 1 Hodges ..... T. D. 850 ft.; shut down.

LASALLE COUNTY

Fred W. Vaiz' No. 1 Coleman, 200 ft. from S and E lines of SW Sec. 514, B.S.&F. Sur. ..... T. D. 40 ft.; standing.

LAVACA COUNTY

Newton Oil Co.'s No. 1 Reeves, cor. of S line of Reeves tract, John Hueser Sur. ..... T. D. 3,340 ft.; shut down.

LIVE OAK COUNTY

Jacob, Buzzini & Pickett, Inc.'s No. 1 C. E. Kay, in the Bridget Fadden Sur., 3 miles E from George West ... T. D. 915 ft.; shut down.
Penn Oil Co.'s No. 2 Lyne Bros., 1½ miles SW of No. 1 ... T. D. 2,760 ft.; dry and abnd.
Houston Oil Co.'s No. 3 Dunning, 330 ft. from NE line and 2,800 ft. from SE line of tract, M. B. Kilvin Sur. ... Moving in derrick.
Houston Oil Co.'s No. 1 D. W. Snyder, 630 ft. from S line, 150 ft. from E line of Snyder tract, T. E. Garner Sur. ..... T. D. 5,386 ft.; coring.
Illinois Exploration Synd.'s No. 1 Reeves-Brown, 1,300 ft. S of Sellars tract, 1,800 ft. E of Ry. ..... T. D. 401 ft.; drlg.
Sid Keoughan's No. 1 C. E. Terrell, 6,000 ft. from N line, 1,000 ft. from E line, Dan O'Boyle Sur. ..... T. D. 2,840 ft.; shut down.
Tul-Tex Oil Co.'s No. 1 L. Jacobs, 4 miles from N of Callihan Field ..... T. D. 3,600 ft.; drlg.

LEE COUNTY

Burt et al's (M. D. Rickett) No. 1 R. C. Sanders ..... T. D. 3,124 ft.; shut down.
Marts et al's No. 1 Thomas ..... T. D. 1,950 ft.; drlg. shale.
A. H. Wheeler and associates' No. 1 fee, Blk. 47, H. Donohue Sur. ..... T. D. 1,987 ft.; will drill deeper.

McLENNAN COUNTY

C. E. Groone et al's No. 1 League ..... T. D. 932 ft.; shut down.
W. L. Murrel et al's No. 1 Hixon ..... T. D. 775 ft.; shut down.

McMULLEN COUNTY

Mogul Pet. Co.'s No. 1 Martin, 150 ft. NW line, 150 ft. to SW line of E. Melon No. 212 Sur. ..... T. D. 632 ft.; standing.
Sheree, Brodie and Emick's No. 1 Shiner, Henry Brewer Sur. ..... T. D. 500 ft.; drlg.; show gas 274-79 feet.

MAVERICK COUNTY

Rycade Oil Corp.'s No. 6 Chittim, 1,445 ft. from S, 320 ft. from W of Sec. 7, I.&G.N. Sur. ..... T. D. 3,620 ft.; shut down.
Rycade Oil Corp.'s No. 5 Sullivan, in C of Sec. 82, Blk. 7, in the I.&G.N. Sur. ..... T. D. 7,200 ft.; drlg.
Texas Gas Utilities Co.'s No. 7 Chittim, 5.70° E, 1,845 ft. from No. 3, I.&G.N. Sur. ..... Spudding.

MEDINA COUNTY

National Oil Co.'s No. 1 Howard, 1,750 ft. E of W line, 1,854 ft. N of S line of survey in the John George Sur. No. 9, 10 miles S of Dunlay ..... T. D. 1,907 ft.; drlg.
Caldwell et al's No. 1 L. W. Burrell ..... T. D. 518 ft.; standing.
Pat Armstrong's No. 1 Crawford, 1,389 ft. N line, 2,550 ft. E line of survey, 487.6 miles W of Devine ..... T. D. 2,789 ft.; shut down.
United North & South Dev. Co.'s No. 1 Little, S from D'Hanis and near S line of county ..... T. D. 4,242 ft.; whipstocking.

MILAM COUNTY

Rheubotham & Tate's No. 1 Johnson, 320 ft. from N line, 250 ft. from W line of 40-ac. tract, D. Robinson Sur. ..... T. D. 1,475 ft.; shut down.
Kyser, Roberts & Dibble's No. 2 Ward ..... T. D. 1,600 ft.; shut down.
Lloyd Oil Corp. and H. W. Elliott's No. 1 Davis ..... T. D. 1,300 ft.; standing.
J. E. McKee et al's No. 1 Littleton, 150 ft. from N and 225 ft. from W lines of lease, C. Chevallier Sur. ..... Derrick.
G. I. Moore's No. 1 Davis ..... T. D. 1,985 ft.; sulphur water.
Peggie Bros.' No. 1 M. Reed ..... T. D. 650 ft.; shut down.
Service Oil & Gas Co.'s No. 1 H. G. Henslee, 500 ft. from NW line, 400 ft. from NE line of 50-ac. tract, Valdez Sur. ..... T. D. 2,180 ft.; standing.

NUECES COUNTY

Grimm et al's No. 1 William Baur ..... Location.
Hale & Hall's No. 1 Koenisch ..... Rigging up rotary.
Houston Oil Co.'s No. 1 Comstock, 105 ft. N of C of tract ... T. D. 4,913 ft.; 20,000,000 ft. gas.
Houston Oil Co.'s No. 1 Joe Hunter, 607 ft. from W line, 165 ft. from S line, 75-ac. tract, Sec. 591 ..... T. D. 513 ft.; waiting on cement.
Bowen et al's No. 1 Theo Prieur ..... Spudded and shut down.
Pearson Properties, Inc.'s No. 1 State National Bank ... T. D. 5,430 ft.; drlg.
Calailen Oil & Gas Co.'s No. 2 Allen, 800 ft. from E line, 1,100 ft. from S line, Blk. 76, Garias Sur. ..... T. D. 1,975 ft.; shut down.
H. H. Weinert's No. 1 Mohle, 450 ft. from S line, 450 ft. from W line, Sec. 94, Bishop Subd., Palo Alto lands ..... T. D. 452 ft.; set casing.

REAL COUNTY

McGinley Corp.'s No. 1 Haby, C of SW Sec. 175 ..... T. D. 400 ft.; drlg.

STARR COUNTY

Los Olmos Oil Co.'s No. 2 Kelsey-Bass, Blk. 6, Porcion 77 ..... T. D. 75 ft.; drlg.
Menyard et al's No. 1 Sealbury, 150 ft. from E line, 5,550 ft. from N line, Share 5, Porcion 75, Jurisdiction of Carmargo ..... Rigging up.

SAN PATRICIO COUNTY

George B. Pickett's No. 1 Baldwin, 900 varas due E of Denton, 1,200 ft. S of the SE cor. of O'Neill Sur., Abstract 211 ..... T. D. 4,020 ft.; shut down.
Cosden Oil Co.'s No. 1 Ramsey, 3,000 ft. from N line, 4,500 ft. from E line, Portilio Sur. ..... T. D. 3,100 ft.; drlg.
Union Prod. Co.'s No. 4 Welder, 3,000 ft. N line, 4,500 ft. E line of tract in the E. Portillo Sur. ..... T. D. 5,893 ft.; standing.
C. B. Peterman et al's No. 1 Foster, 150 ft. from E line, 1,420 ft. from N line of Blk. 5 of the Welder-Coleman-Fulton Subd., 3½ miles W from Sinton ..... Location.
Cosden Oil Co.'s No. 1 Powell, 330 ft. E line of 36-ac. tract in Sec. 32, Paul Subd., Coleman-Fulton Pasture Lands ..... T. D. 4,532 ft.; standing.
Saxet Oil Co.'s No. 1 Carrol, 8 miles N of Gregory ..... Derrick.

TRAVIS COUNTY

Fort Bend Oil Co.'s No. 1 Engleman, 450 ft. N line, 150 ft. W line of 108-ac. tract, J. H. Denson Sur. ... T. D. 385 ft.; shut down.
Sun Oil Co.'s No. 1 Nagle ..... T. D. 896 ft.; junked and abnd.
Allen et al's No. 1 Sophie Smith ..... T. D. 200 ft.; drlg. shale.

UVALDE COUNTY

Phantom Oil Co.'s No. 1 Claudt, Sec. 611 ..... T. D. 2,710 ft.; shut down.
Waldrop & Welch's No. 1 E. R. Edmonds, 1,750 ft. NW, 7,200 ft. W of Sec. 71, in the A. Gomes Sur., 8 miles S of Uvalde ..... T. D. 1,610 ft.; shut down.

VICTORIA COUNTY

Newton et al's No. 1 West ..... T. D. 1,550 ft.; standing.
The Texas Co.'s No. 1 A. M. McFadden, 1,550 ft. from N and E lines of H. Bonny Sur. ..... T. D. 6,201 ft.; drlg. sand.

WEBB COUNTY

Usher Carson et al's No. 3 Benavides, 150 ft. from S and W lines of Blk. 7, Sur. 1,613 ..... T. D. 400 ft.; drlg.
O. W. Killam's No. 1 Bruni, 2,490 ft. from E line, 1,170 ft. from S line of Sur. No. 77 ..... T. D. 1,600 ft.; drlg.

WILSON COUNTY

Rycade Oil Corp. and Getty Petroleum Co.'s No. 1 J. A. Johnson, 150 ft. from N line, 600 ft. E of railroad tract, Jose de Balmaseda Sur. ..... Rigging up.
Stover and Wren's No. 1 John Reuss, 10,400 ft. from SW line, 2,300 ft. from NW line, O. A. Trevino Sur. No. 19 ..... T. D. 45 ft.; standing.

ZAPATA COUNTY

T. H. Ward's No. 1 Uribe, 150 ft. NW line, 150 ft. SW line, Blk. 8 Subd., Share 7, Partition No. 6, T. Uribe Partition of Jose V. Borrego Sur. ..... Rigging up.
John Poppas Pool, Inc.'s No. 1 Flores, 2,977 ft. SE line, 6,000 ft. Rio Grande River, Porcion 35 ..... Rigged up.
B. F. Nixon's No. 1 A. Guiterrez, 170 ft. S line, 332 ft. E line, Lot 5, Blk. 3, Partition 10, Borrego grant ... T. D. 50 ft.; standing.
O. W. Killam's No. 2 Slator, Borrego grant ..... T. D. 700 ft.; drlg.
Penny Prod. Co.'s No. 1 Juan V. Cuellar, Jr., et al, 175 ft. NE line, 175 ft. SE line Poppas Subd., Porcion 33 and 34, Blk. 1, Sur. 2 ..... T. D. 1,820 ft.; drlg.
William Marks' No. 1 Flores, Blk. 36, Porcion 37 ..... T. D. 326 ft.; drlg.
National Oil Co. of Delaware's No. 1 Luther, 617 ft. NW line, 96 ft. NE line, Blk. 97, Da Prom Subd., Porcion 6 ..... T. D. 380 ft.; standing.
Mackenzie and Tallmadge's No. 1 Trevino, 400 ft. SE line, 200 ft. NE line, Blk. 6, Sur. No. 4, Porcion 2 and 3 ..... T. D. 300 ft.; drlg.
F. M. Blair & Son's No. 1 Guiterrez, 150 ft. from NW line, 660 ft. from SW line, Blk. 2, Blair Subd., Comitas grant ..... T. D. 1,750 ft.; standing.
Lincoln Oil & Gas Co.'s No. 1 Guiterrez, Blk. 28, Subd., La Huerta grant ..... T. D. 1,150 ft.; drlg.
J. J. O'Hern's No. 1 S. Benavides, 150 ft. from NW line, 150 ft. from NE line, Blk. 10, Fansler Subd., Villa grant ..... T. D. 1,830 ft.; drlg.

ZAVALA COUNTY

Ed Anglin's No. 6 La Pryor ..... Location.
Carl Cromwell's No. 1 Whitecotton, C of NW Sec. 1, A.P.&M. Sur. ..... Location.
F. W. Weigand's No. 1 Gates, 1,320 ft. from N line, 220 ft. from NE cor., Sur. No. 13 ..... T. D. 3,215 ft.; shut down.

SOUTHWEST TEXAS PROVEN AREAS

(Continued from Page 50)

Chapman et al's No. "D" 6 Abbott ..... T. D. 1,930 ft.; comp. for 200 bbls. pumping.
Chapman et al's No. D-7 J. C. Abbott ..... T. D. 200 ft.; shut down.
Chapman et al's No. "D" 10 Abbott ..... Location.
Collins et al's No. 6 Lawrence ..... Location.
J. L. Collins & Co.'s No. 7 M. V. Lawrence, 150 ft. from E line, 215 ft. from S line of 27-ac. tract in the S Miller Sur. ..... Csg. setting; shut down for water
Ertell et al's No. 6 J. C. Abbott ..... T. D. 1,730 ft.; shut down.
E. E. Ertell's No. 7 J. C. Abbott ..... T. D. 100 ft.; standing.
E. L. Chapman et al's No. 2-A Sides ..... Rigging up.
J. L. Collins & Co.'s No. 5 M. V. Lawrence, 150 ft. from W line, 515 ft. from S line of 27-ac. tract, S. Miller Sur. ..... T. D. 1,462 ft.; standing.
McNeal et al's No. 7 Kilgore ..... T. D. 2,061 ft.; comp. for 15 bbls. pumping.
E. C. Mead's No. 1 Abbott, 100 ft. from N and W lines of 6-ac. tract, S. Miller Sur. ..... T. D. 2,166 ft.; shut down.
Sequoia Oil Co.'s No. 7 T. P. Simmons ..... Location.
G. Stratton's No. 5 J. C. Abbott, 450 ft. from E line, 150 ft. from S line of 32-ac. tract, S. Miller Sur. .... T. D. 1,730 ft.; set csg.
Trapshooter Reilly's No. 3 M. V. Lawrence, Simon Miller Sur. ..... T. D. 1,910 ft.; flowing by heads.

PETTUS ARKA—BEE COUNTY

Batex Petroleum Co.'s No. 3 Burnett, 360 ft. from N line, 600 ft. from E line of 320-ac. tract, Kerr. Sur. ..... Location.
J. L. Mauldin's No. 1 fee, 1,300 ft N of S line, 150 ft. E of Medio Creek, Kerr Sur. ..... T. D. 3,734 ft.; shut down for fuel.
Union Producing Co.'s No. 13 Ray, George Habbermacher Sur. ..... T. D. 3,683 ft.; setting csg.
Union Producing Co.'s No. 26 Ray, 3,500 ft. from S line, 4,000 ft. from E line, P. Miller Sur. ..... Location.

AGUA DULCE FIELD—NUECES COUNTY

South Texas Production Co.'s No. 3 Walter, 800 ft. from S line, 460 ft. from E line of Walters tract in Section 34 ..... T. D. 1,984 ft.; standing.

SAXET FIELD—NUECES COUNTY

O. C. Best et al's No. 1 Boory ..... Derrick.
Saxet Oil & Gas Co.'s No. 2 Donnegan, 2,150 ft. due S of No. 1 Donnegan ..... T. D. 6,459 ft.; completed gas well; plugged back to 2,440 ft.
Moody-Seagraves Producing Co.'s No. 1 Smith, 450 ft. from N and E line of 120-ac. tract, J. Dunn Sur. ... T. D. 4,074 ft.; reaming core hole.
Pearson Properties, Inc.'s No. 1 State National Bank .... T. D. 5,430 ft.; drlg. shale.

LION McFADDEN POOL—VICTORIA COUNTY

Lion Oil Refining Co.'s No. 2 McFadden, 1,917 ft. W of NE cor. and 512 ft. at right angles from N line of Edwards Sur., 660 ft. E of No. 1 in the M. J. Travesla Sur. ..... T. D. 6,425 ft.; preparing to shoot drill stem.

LAREDO DISTRICT

SCHOOLFIELD-O'BYRNE POOL—DUVAL COUNTY

Magnolia Petroleum Co.'s No. 1 Edge-Hahl, 150 ft. from N line, 150 ft. from W line, Sur. ..... T. D. 4,540 ft.; drlg.
Magnolia Petroleum Co.'s No. 1 Wilson, 330 ft. N line, 330 ft. E line, Sur. 136 ..... Location.

RANDADO POOL—JIM HOGG COUNTY

J. W. Pippin's No. 1 Hinnant, 150 ft. each way from SW cor., Blk. 11, Sur. 147 ..... Derrick.

KOHLER POOL—DUVAL COUNTY

Humble Oil & Refining Co.'s No. 50 Kohler, 2,805 ft. from S line, 165 ft. from W line of Sur. 164 ..... T. D. 1,903 ft.; drlg.; sand 1,860-87 ft.; tested oil, gas and salt water.

S. R. C. POOL—DUVAL COUNTY

The Texas Company's No. 1 Duval Ranch, 2,490 ft. S line, 150 ft. W line of Sur. 297 ..... T. D. 1,960 ft.; drlg.

COLE POOL—DUVAL COUNTY

Magnolia Petroleum Co.'s No. 4 Benavides, 150 ft. from NE line, 450 ft. from NW line, Blk. 28, Sur. 174 .... T. D. 2,864 ft.; waiting on cement; sand 2,858-64 ft.
Southern Oil Co.'s No. 2 King-Harper, 1,794 ft. E line, 729 ft. N line of Sur. 323 ..... Location.
Wilkins Seacord's No. 2 Mulholland, 218 ft. from N line, 1,050 ft. from W line of Sur. 173 ..... T. D. 3,087 ft.; dry and abnd.

ROMA POOL—STARR COUNTY

The Texas Company's No. 5-A V. C. de Guerra, 675 ft. from N line, 675 ft. from E line, Share 305, Por. 67, Jurisdiction of Mier ..... T. D. 3,840 ft.; plugged back to 3,641 ft. to test.

MID-OJUELOS—WEBB COUNTY

O. W. Killam's No. 3 Garcia, 586 ft. S line, 164 ft. E line, Blk. 44, Los Ojuelos grant ..... T. D. 1,940 ft.; drlg.

CAROLINA-TEXAS POOL—WEBB COUNTY

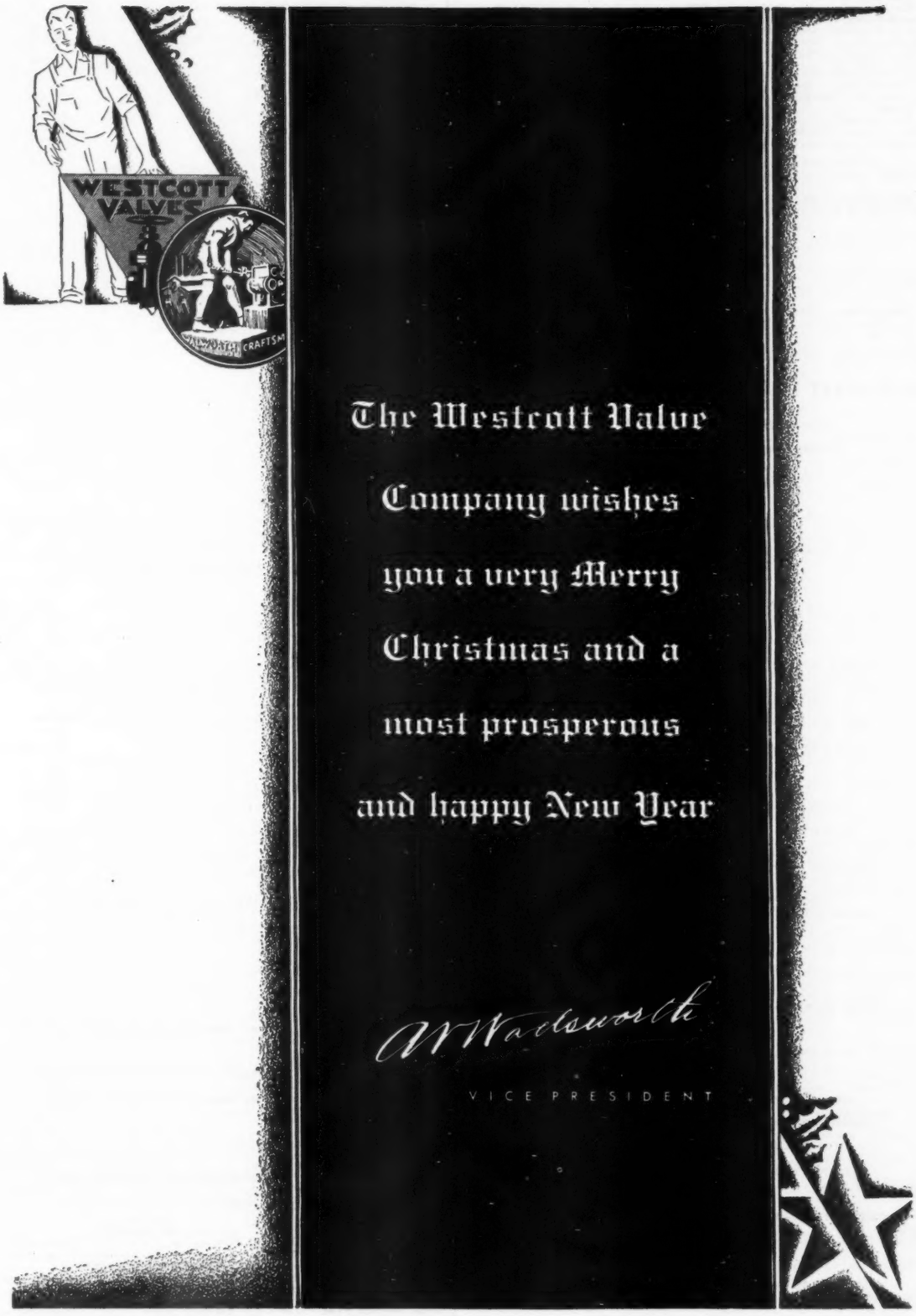
George S. Marshall's No. 1 C. W. Webster, 810 ft. from S line, 150 ft. from W line, Sur. 684 ..... T. D. 2,900 ft.; drlg.

CHABCO REDONDO POOL—ZAPATA COUNTY

C. R. Moore and J. W. Moore's No. 1 Adela G. de Flores, 330 ft. from NW line, 330 ft. from NE line, Doty Subd. ..... T. D. 2,000 ft.; standing.
C. R. Moore and J. W. Moore's No. 2 Adela G. de Flores, 150 ft. from NE line, 150 ft. from SE line, Doty Subd. ..... T. D. 100 ft.; standing.

JENNINGS-MUCKELROY POOL—ZAPATA COUNTY

Allied Oil & Gas Co.'s No. 12 Guiterrez, 750 ft. from NE line, 3,663 ft. from SE line, Share 4, Fansler Partition, Comitas grant ..... T. D. 100 ft.; standing.
Allied Oil & Gas Co.'s No. 1 Pedro de los Santos, 1,750 ft. SE line, 450 ft. SW line, Share 6, Fansler Partition, Comitas grant ..... Location.
Allied Oil & Gas Co.'s No. 1 D. Bustamente, 361 ft. from NW line, 150 ft. from NE line, Blk. 12, Share 10, Fansler Partition, Comitas grant ..... T. D. 2,009 ft.; dry and abnd.
Allied Oil & Gas Co.'s No. 14 Guiterrez, 4,263 ft. SE line, 150 ft. SW line, Share 4, Fansler Partition, Comitas grant ..... T. D. 400 ft.; drlg.
J. K. Gibble's No. 1 Trevino, 150 ft. from NE line, 150 ft. from SE line of Blk. 3, Sur. 65 ..... Derrick.
Nordan and Morris and Grimm and Yakey's No. 1 S. Bustamente, 990 ft. from NE line, 150 ft. from NW line, Share 34, Fansler Partition, Comitas grant .. Derrick.
Pal-Mar Oil Co.'s No. 1 M. Garza, 555 ft. NE line, 150 ft. NW line of Douglas Subd., M. Garza Lands Comitas grant ..... T. D. 1,290 ft.; drlg.



The Westcott Valve
Company wishes
you a very Merry
Christmas and a
most prosperous
and happy New Year

A. W. Wadsworth

VICE PRESIDENT

Shankle-Newton Oil & Gas' No. 16 M. Trevino, 765 ft. N of S cor. and 150 ft. from E line, Blk. 15, Sur. 65..Location.
W. R. Shankle's No. 7 Guiterrez, 2,100 ft. from NE line, 2,898 ft. from NW line, Share 4, Fansler Partition, Comitas grant ..Location.
S. R. C. Oil Co.'s No. 1 Cuellar, 150 ft. S and W lines, Block 15, Sur. 62 ..Location.
S. R. C. Oil Co.'s No. 1 F. Cuellar, 300 ft. from S line, 300 ft. from W line, Blk. 6, Sur. 285 ..T. D. 1,837 ft.; drlg.
S. R. C. Oil Co.'s No. 2 F. Cuellar, 300 ft. from S line, 300 ft. from E line, Blk. 8, Sur. 19 ..Location.
S. R. C. Oil Co.'s No. 10-A Cuellar, 150 ft. from NW line, 150 ft. from SW line, Blk. 10, Sur. 65 ..T. D. 1,245 ft.; comp. for 40 bbls.
S. R. C. Oil Co.'s No. 9-B Cuellar, 660 ft. from SW line, 150 ft. from SE line, Blk. 7, Sur. 65 ..T. D. 1,294 ft.; dry and abnd.
S. R. C. Oil Co.'s No. 4-D Montemayor, 795 ft. S line, 150 ft. W line, Blk. 8, Sur. 64 ..T. D. 1,289 ft.; sand.
S. R. C. Oil Co.'s No. 3-C (12-B) Trevino ..T. D. 1,249 ft.; comp. for 50 bbls.
Whicker, Arnold & Ahler's No. 3 Garza, 150 ft. from SW line, 450 ft. from SE line, Blk. 1, Zerro Ranch Subd., Comitas grant ..Rigging up.
J. H. Winch's No. 2 A. Bustamente, 450 ft. from NW line, 150 ft. from NE line, Blk. 7, Share 5, Fansler Partition, Comitas grant ..T. D. 1,257 ft.; comp. for 400 bbls.. pumping.
J. H. Winch's No. 3 A. Bustamente, 750 ft. NW line, 150 ft. NE line, Blk. 7, Share 5, Fansler Partition, Comitas grant ..T. D. 300 ft.; drlg.

JENNINGS-CUELLAR POOL—ZAPATA COUNTY

O. W. Killam's No. 1 Slator, Blk. 1, Slator Pasture, Borrego grant ..Location abandoned.
O. W. Killam's No. 34 "B," Sur. 277 ..T. D. 1,599 ft.; comp. for 100 bbls.
O. W. Killam's No. 35 "C," Sur. 278 ..T. D. 1,572 ft.; sand; waiting on cement.
O. W. Killam's No. 37-C Cuellar, 150 ft. N line, 1,775 ft. SW line of Sur. 278 ..Location.
O. W. Killam's No. 36-B Cuellar, 150 ft. S line, 1,630 ft. SW line of Sur. 277 ..Location.

MIRANDO VALLEY POOL—ZAPATA COUNTY

O. W. Killam's No. 1 Killam, 875 ft. NE line, 2,080 ft. SE line of Sur. No. 16 ..T. D. 300 ft.; drlg.

GULF COAST FIELDS AND WILDCATS

(Continued from Page 52)

Humble & Valley's No. 10 Woodley ..Comp. flowing 406 bbls. 3,488 ft.

HUMBLE—HARRIS COUNTY

Cullen West's No. 5 Lee, south ..Total depth 4,600 ft.; drlg. broken shale 4,830 ft.
John Deering's No. 2 Bennett ..Comp. pumping 50 bbls. 4,069 ft.
John Deering's No. 1 Groff (workover) ..Rig up to work over.
P. S. Griffith's No. 1 fee ..Drlg. hard shale and lime 4,224 ft.
LaRue, trustee's No. 1 Crane, northwest ..Derrick.
M. LaRue's No. 1 Tuffly, northwest ..Gumbo 1,405 ft.; shut down.
Southern Coastal Oil Co.'s No. 2 Perkins ..Drlg. shale 2,740 ft.
Sun Oil Co.'s No. 13 Bender (workover) ..Standing 4,589 ft.
Sun Oil Co.'s No. 18 Bender ..Shale 4,220 ft.; fishing bit.
Sun Oil Co.'s No. 19 Bender ..Drlg. gumbo 454 ft.
The Texas Company's No. 2 fee ..Total depth 4,397 ft.; comp. flowing 350 bbls. 32 gravity oil; 260 pounds pressure.
Trapshooter Oil Co.'s No. 3 Rosenbaum ..Shale 4,067 ft.; preparing to pump.
Trapshooter Oil Co.'s No. 10 Neill, northwest ..Location.
E. M. Wilson's No. 6 Wheeler & Pickens ..Oil sand 1,391 ft.; set 48 ft. 4½-in. screen; failed to flow.

PIERCE JUNCTION—HARRIS COUNTY

Gulf Prod. Co.'s No. 2 Manchester Corp. ..Drlg. sand 290 ft.
Mike Kouri's No. 1 Jones fee, northwest ..Drlg. sand 3,922 ft.
Rio Bravo Oil Co.'s No. 20-A Settegast ..Total depth 5,550 ft.; sidetracking 4,671 ft.

BIG CREEK—FORT BEND COUNTY

Gulf Production Co.'s No. 61 Davis ..Rig standing.

LOST LAKE—CHAMBERS COUNTY

Pure Oil Co.'s No. 5 Lost Lake ..Total depth 5,611 ft.; preparing to sidetrack.
Pure Oil Co.'s No. 12 Lost Lake ..Sand showing oil 2,838 ft.; to make drill stem test.

NASH—BRAZORIA COUNTY

Rycade Oil Corp.'s No. 37 Wisdom ..Total depth 5,662 ft.; sidetracking.

SARATOGA—HARDIN COUNTY

Rio Bravo Oil Co.'s No. 103-A Cotton ..To pump 1,084 ft.
Rio Bravo Oil Co.'s No. 100-A Cotton ..To pump 539 ft.

SPINDLETOP—JEFFERSON COUNTY

Yount Lee Oil Co.'s No. 72 McFaddin ..Drlg. oil sand 4,088-4,199 ft.
Yount Lee Oil Co.'s No. 117 McFaddin (workover) ..Drlg. hard sand and lime 4,339 ft.
Yount Lee Oil Co.'s No. 143 McFaddin ..Drlg. packed sand 6,232 ft.

NORTH DAYTON—LIBERTY COUNTY

Saxet Oil Co.'s No. 2 Davis ..Drlg. shale and lime 5,274 ft.
Harrison & Abercrombie's No. 1 Blewett ..Rig.
Harrison & Abercrombie's No. 1 Jones ..Total depth 4,635 ft.; sidetracking gumbo 2,427 ft.
Harrison Oil Co.'s No. 4 Quintette (workover) ..Total depth in salt 6,077 ft.; testing oil sand 4,276 ft.
Harvey Smith's No. 1 Kynerd ..Drlg. sand and shale 5,256 ft.

HIGH ISLAND—GALVESTON COUNTY

Gulf Prod. Co.'s No. 10 Smith ..Total depth 5,792 ft.; sand and shale showing oil; sidetracking packed sand 5,611 ft.
Marrs McLean's No. 12 Cade (workover) ..Total depth 4,440 ft.; sidetracking 4,268 ft.
Marrs McLean's No. 19 Cade ..Drlg. hard sand and lime 3,740 ft.
Marrs McLean's No. 20 Cade ..Rig standing.

ORANGE—ORANGE COUNTY

Gulf Prod. Co.'s No. 12 Hagen-Moore ..Pulling strainer to deepen 3,470 ft.

ORCHARD—FORT BEND COUNTY

Gulf Production Co.'s No. 27 Moore ..Drlg. shale and lime 2,686 ft.

HULL—LIBERTY COUNTY

The Texas Company's No. 4 Barron ..Derrick.

PORT NECHES—ORANGE COUNTY

The Texas Company's No. 2 Starks ..Total depth 6,045 ft.; perforated casing 4,114-44 ft.; pumped 10 bbls. in 2 hrs.; pumped dry.

CLAY CREEK—WASHINGTON COUNTY

Sun Oil Co.'s No. 1 Grimm ..Spudded.
Sun Oil Co.'s No. 4 Janner ..Anhydrite 3,263 ft.; reaming 3,146 ft.
Sun Oil Co.'s No. 1 Freeman ..Total depth 3,048 ft.; set 6-inch casing 2,029 ft.

SOUR LAKE—HARDIN COUNTY

The Texas Company's No. 307 fee ..Total depth 3,006 ft. in anhydrite; to make drill stem test oil sand 2,989-93 ft.

ESPERSON—LIBERTY COUNTY

Cranfill-Reynolds Oil Co.'s No. 1-C Kirby fee ..Drlg. sand and shale 1,990 ft.
Yount Lee Oil Co.'s No. 3 Moore's Bluff ..Total depth 7,836 ft.; sidetracking hard sand 7,140 ft.

HANKAMER—LIBERTY COUNTY

Gulf Prod. Co.'s No. 1 Exzel ..Drlg. sticky shale 6,012 ft.
Gulf Prod. Co.'s No. 10 Boyt ..Drlg. gumbo 3,286 ft.

BOLING—WHARTON COUNTY

C. S. Thomas' No. 1 Voiney ..Standing shale 535 ft.
Houston Oil Co.'s No. 13 F. V. W. Heard ..Location.
Houston Oil Co.'s No. 1 Rooke ..Drlg. shale 5,735 ft.
Houston Oil Co.'s No. 2-A Fannie Heard ..Drlg. shale 6,278 ft.
Houston Oil Co.'s No. 1 Doughty ..Drlg. sand and shale 5,649 ft.
Houston Oil Co.'s No. 1 Tom Heard ..Oil sand 6,449-62 ft.; cem. 5 3/16-in. casing.
Houston Oil Co.'s No. 1 O'Connor ..Total depth 5,913 ft.; plugged to 2,524 ft.
Phillips Petroleum Co.'s No. 1 O'Brien ..Total depth 6,643 ft.; perforated csg. 6,246-53 ft.; com. dry gas well, 2,200 pounds pressure; shut in.
Ed. Jones' No. 1 Kelly, Blk. 106 ..Location.
O. M. Jones' No. 2 Mitchell (workover) ..Set 39 ft. screen 5,441 ft.; comp. flowing 147 bbls. on ½-in. choke.
Luling Oil & Gas Co.'s No. 1 J. W. Kay ..Standing 4,928 ft.
Luling Oil & Gas Co.'s No. 1 City, Lot 16, Blk. 4 ..Oil sand 3,662-72 ft.; to make drill stem test.
Moody-Seagraves Prod. Co.'s No. 1 Carlisle (workover) ..Deepened to 6,466 ft.; cmtd. 6⅝-in. 6,448 ft.
Moody-Seagraves-Karona's No. 1 F. Hayser ..Oil sand 3,624-49 ft.; to make drill stem test.
Moody-Seagraves Prod. Co.'s No. 1 Linney, Blk. 41 ..Set 20 ft. screen in sand 6,458 ft.; comp. flowing 215 bbls. gasoline, 2,300 lbs. pressure.
Moody-Seagraves Prod. Co.'s No. 1-A St. John ..Total depth 6,644 ft.; plugged to sand 5,491-5,500 ft.; comp. flowing 700 bbls. on 2-in. line.
Moody-Seagraves Prod. Co.'s No. 6 Morgan-O'Connor ..Location.
Moody-Seagraves and Phillips Pet. Co.'s No. 3-B J. F. B. Heard ..Rig.
Moody-Seagraves Prod. Co.'s No. 3 O'Brien ..Cmtd. 12½-in. csg. 1,256 ft.
Moody-Seagraves and Phillips Pet. Co.'s No. 1-C J. F. B. Heard (Independent) ..Drlg. hard sand 6,312 ft.
Nichols Oil Co.'s No. 1 Wood ..Drlg. sand 3,476 ft.
Pearson Properties, Inc.'s No. 1 Hornburg ..Derrick.
Saxet Oil Co.'s No. 1 L. H. Johnson, Blk. 11 ..Location.
Saxet Oil Co.'s No. 1 Fox heirs (workover) ..Total depth 3,963; shut down.
Saxet Oil Co.'s No. 5-A Wilson Heard (workover) ..Oil sand 6,445-60 ft.; cem. 5 3/16-in. casing 6,443 ft.
Sun Oil Co.'s No. 3 Rea ..Reset screen 3,658 ft.; swabbing.
L. L. Smith's No. 2 Rogers, James Power Sur. ..Location.
L. L. Smith's No. 1 L. M. Rogers, Blk. 87 ..Drlg. shale 3,745 ft.
The Texas Company's No. 2 Shelton (workover) ..Drlg. shale 6,462 ft.
Union Prod. Co.'s No. 11 Fannie Heard ..Total depth 3,715 ft.; plugged to sand 3,642-48 ft.; swabbing.
Union Prod. Co.'s No. 2 Moss-Powers, Blk. 109 ..Derrick.
Union Prod. Co.'s No. 5 O'Brien (workover) ..Rig up to work over.
Union Prod. Co.'s No. 7 O'Brien, Blk. 85 ..Drlg. gumbo 1,255 ft.
Union Prod. Co.'s No. 5 Powers ..Drlg. sand 5,320 ft.
Union Prod. Co.'s No. 7 Powers ..Location.
Union Prod. Co.'s No. 8 Powers, Blk. 82 ..Rig.
Union Prod. Co.'s No. 6 Nancy J. Ryals ..Derrick.
Union Prod. Co.'s No. 1 Rose Lambert ..Location.
Union Prod. Co.'s No. 1 Shelton ..Sand and boulders 1,518 ft.; fishing.
Union Prod. Co.'s No. 1 J. Shay ..Location.
Union Prod. Co.'s No. 3 Mitchell (workover) ..Total depth 6,458 ft.; plugged to sand 6,437-48 ft.
Union Prod. Co.'s No. 5 Mitchell ..Cem. 13-in. (O.D.) casing 1,272 ft.

SOUTH LOUISIANA FIELDS

LOCKPORT—CALCASIEU PARISH

Union Sulphur Co.'s No. 1 Martha Moss ..Total depth 7,119 ft.; set 3-in. screen 6,722-32 ft.; tested salt water; pulled screen; to sidetrack 6,486 ft.
Vacuum Oil Co.'s No. 9 Bordages ..Bldg. derrick.
Vacuum Oil Co.'s No. 8 Farquahar ..Drlg. sand and gravel 270 ft.
Vacuum Oil Co.'s No. 12 Miller (workover) ..Drlg. gumbo 3,897 ft.
Vacuum Oil Co.'s No. 28 Miller ..Washing 5,623 ft.
Vacuum Oil Co.'s No. 30 Miller ..Drlg. shale 3,804 ft.
Vacuum Oil Co.'s No. 31 Miller ..Bldg. bridge to location.

EDGERLY—CALCASIEU PARISH

Rex Petroleum Co.'s No. 13 Hunter ..Drlg.

HACKBERRY—CAMERON PARISH

Calcasieu Oil Co.'s No. 23 Watkins ..Gumbo 488 ft.; set 10-in. casing.
Calcasieu Oil Co.'s No. 9 Valery ..Rig.
R. E. Seiss' No. 1 Vincent ..Abandoned 1,996 ft.
R. E. Seiss' No. 2 J. M. Vincent ..Rig.
The Texas Company's No. 8 State ..Location.
Yount Lee Oil Co.'s No. 34 State ..Location.
Yount Lee Oil Co.'s No. 36 State ..Location.
Yount Lee Oil Co.'s No. 37 State ..Location.
Yount Lee Oil Co.'s No. 38 State ..Location.
Yount Lee Oil Co.'s No. 39 State ..Location.
Yount Lee Oil Co.'s No. 40 State ..Gumbo 503 ft.; cem. 10-in. casing.

JENNINGS—ACADIA PARISH

Yount Lee Oil Co.'s No. 9 Housierre Latrielle ..Sand showing gas and oil 8,609-13 ft.; tried to blow out; drill stem stuck; total depth 8,653 ft.

VINTON—CALCASIEU PARISH

Gulf Refining Co.'s No. 4 Gardner (workover) ..Sidetracking 3,405 ft.
Gulf Refining Co.'s No. 5 Gardner ..Drlg. shale and lime 2,796 ft.
Gorbat Oil Co.'s No. 1 Clement Lyons ..Total depth 4,040 ft.; set strainer 3,542 ft.; swabbing salt water.
Vinton Pet. Co.'s (Lucky Ten) No. 1 Lizzo ..Total depth 3,326 ft.; pulling screen to deepen.
Vinton Pet Co.'s No. 2 Gray (workover) ..Total depth in salt 3,771 ft.; set strainer 3,336 ft.; bailing.
Wilson-Broach's No. 5 Wilson ..Drlg. gumbo 2,659 ft.

BAYOU BOUILLON—ST MARIN PARISH

Humble Oil & Ref. Co.'s No. 1 Woodyard Lake ..Total depth 6,061 ft.; sidetracking sandy shale and lime 4,129 ft.
Humble Oil & Ref. Co.'s No. 4 State ..Drill stem stuck 4,477 ft.

SWEET LAKE—CAMERON PARISH

Pure Oil Co.'s No. 10 Yount Lee ..Drlg. sandy shale 3,177 ft.

SULPHUR—CALCASIEU PARISH

Union Sulphur Co.'s No. 763 fee ..Oil sand 4,710-27 ft.; set 1 joint 4½-in. screen; comp. flowing 300 bbls. pipe line oil.
Union Sulphur Co.'s No. 764 fee ..Salt 4,453-6,473 ft.; plugged to oil sand 4,258-80 ft.; tested salt water; to test sand 3,484 ft.

PORT BARRE—ST. LANDRY PARISH

Gulf Refining Co.'s No. 4-A Hoskins ..Building derrick.

MISCELLANEOUS WILDCATS

TEXAS

AUSTIN COUNTY

Empire Gas & Fuel Co.'s No. 1 Kuntze, San Felipe ..Rock 5,187 ft.; drill stem stuck.
O'Hara et al's No. 1 Schrader ..Drlg. shale 2,200 ft.

BRAZORIA COUNTY

The Texas Company's No. 1 Ewin, Harvey Little Sur. ..Fishing drill stem 7,586 ft.
The Texas Company's No. 1 J. H. Murdock, Fresno ..Drlg. shale 6,781 ft.
Mills Bennett Prod. Co.'s No. 2 Reece, Allen ..Rock 2,180 ft.; fishing.
Mills Bennett Prod. Co.'s No. 2 Random, Allen ..Sand and clay 418 ft.; set surface casing.
Faust et al's No. 5 Faust ..Drlg. sand 5,780 ft.
Freeport Sulphur Co.'s No. 2,001 fee, Bryan Heights ..Total depth 4,261 ft.; sidetracking sandy lime 4,195 ft.
Freeport Sulphur Co.'s No. 2 Seaburn ..Anhydrite 1,177 ft.; abandoned.
Freeport Sulphur Co.'s No. 3 Seaburn ..Drill stem stuck 824 ft.; lost returns.
Freeport Sulphur Co.'s No. 4 Seaburn ..Rigging up.
Layne et al's No. 7-A Wisdom, Damon Mound ..Drlg. shale 2,409 ft.
Rycade Oil Corp.'s No. 2 Seaburn, Stratton Ridge ..Drlg. shale.
Steel & Strickland's No. 1 Lockbridge ..Spudded and shut down.
United Oil Syndicate's No. 1 Speer, A. A. Talmadge Sur..Drlg. shale and sand 561 ft.

REFUGIO—REFUGIO COUNTY

Brookins et al's No. 1 Kay ..... Shut down 4,320 ft.
Houston Oil Co.'s No. 15 Pratt-Hewitt-Rooke ..... Location.
Houston Oil Co.'s No. 4 Mrs. M. E. Ryals ..... Location.

CHAMBERS COUNTY

Chicago Oil Corp.'s No. 1 Lawrence ..... Drlg. sandy shale and lime 5,026 ft.
Shell Pet. Corp.'s No. 2 Herff, Moss Bluff ..... Shut down for repairs 5,804 ft.

COLORADO COUNTY

A. H. Eaton et al's No. 1 A. R. Surcek ..... Spudded and shut down.

FORT BEND COUNTY

Long Point Oil Co.'s No. 1 Texas-Gulf fee, H.&T.C. Sur... Location.

GRIMES COUNTY

Cullen & West's No. 1 Bookman, J. Greenwood Sur. .... Drlg. shale 3,406 ft.
Deering & Noble's No. 1 Templeton, 6 miles south of Navasota ..... Preparing to resume drlg. 3,501 ft.

HARDIN COUNTY

D. O. Speight's No. 1 fee, near Batson ..... Drlg. water sand 3,010 ft.

HARRIS COUNTY

Cypress Oil & Development Co.'s No. 2 Kitzmgn ..... Drlg. sand, shale and lime 3,299 ft.
Gulf States Oil Co.'s No. 1 Angsperger ..... Drlg. sandy shale 3,660 ft.
Humble Oil & Ref. Co.'s No. 1 Gerring, Mykawa ..... Drlg. gumbo 1,396 ft.
Humble Oil & Ref. Co.'s No. 4 Minnetex, Mykawa ..... Drlg. shale 4,055 ft.
Sloane Prospecting Co.'s No. 1 Wasova ..... Drlg. gumbo 3,917 ft.
W. C. Turnbow et al's No. 1 Miller, Arthur McCormick Sur. ..... Drlg. shale and lime 3,917 ft.

JACKSON COUNTY

Chicago-Gulf Co.'s No. 8 Drushell, Edna ..... Gas sand 3,866-70 ft.; cem. 6⅝-in. casing 3,864 ft.
Chicago-Gulf Co.'s No. 1 Rogers (workover) ..... Rigging up.
Chicago-Gulf Co.'s No. 2 Lee ..... Sand showing gas 4,147 ft.; to set casing.
Warner-Quinlan's No. 1 Hungerford, Henry Smith Sur.... Rigging up.

JEFFERSON COUNTY

Humble Oil & Ref. Co.'s No. 1 McFaddin, T.&N.O. Sur. 234. Rigging up.
Keith et al's No. 1 Reed-Hankamer ..... Gumbo 400 ft.; cem. 10-in. casing.
The Texas Company's No. 4 Pipkin, Big Hill ..... Drlg. sand and shale 3,892 ft.

LIBERTY COUNTY

Gulf Production Co.'s No. 3 McFaddin, Moss Bluff ..... Location.
Hamm et al's No. 1 Harvard, Davis Hill ..... Drlg. gumbo 690 ft.
Humble Oil & Ref. Co.'s No. 1 Breeding, Moss Bluff .... Abandoned 7,064 ft.
Humble Oil & Ref. Co.'s No. 2 Breeding, Moss Bluff .... Location.
Humble Oil & Ref. Co.'s No. 1 Orlando Hylton, Moss Bluff ..... Total depth 6,544 ft.; trying to pull stuck drill stem.
Humble Oil & Ref. Co.'s No. 1 Sergent, Moss Bluff ..... Total depth 5,860 ft.; set 40-ft. screen 5,783 ft.; comp. flowing 450 bbls. 37 gravity oil at 70 deg. on 5/16-in. choke.
J. R. Ingram's No. 1 Hornbeck, Clayton, Harper Sur. .... Derrick.
Tucker et al's No. 1 Bell, H.&T.C. Sur. No. 4 ..... Derrick.

MATAGORDA COUNTY

H. C. Cockburn's No. 2 Hawkins, Shepherds Mott ..... Total depth 5,250 ft.; standing with casing collapsed at 3,100 ft.
Empire Gas & Fuel Co.'s No. 1 Boker, Citrus Grove ..... Total depth 6,250 ft.; fishing.

MONTGOMERY COUNTY

Lake Creek Oil Co.'s No. 1 Hunt, south of Conroe ..... Shut down 678 ft.; gumbo.
Price & Whitehead's No. 2 Guerges ..... Shut down 2,956 ft.

NACOGDOCHES COUNTY

E. L. Burke et al's No. 1 Latimer, Jose De Los Santos Sur. ..... No report.

POLK COUNTY

Sunshine Oil Co.'s No. 1 Collins, A. Viescha Sur. ..... Set 92 ft 4½-in. screen 3,323 ft.; 150 ft. oil in hole; shut down waiting orders.

REFUGIO COUNTY

Blanco Oil Co.'s No. 1 Dorman ..... Shut down 3,120 ft.

SAN JACINTO COUNTY

E. P. Edwards et al's No. 1 Bennett, northwest of Cold Springs ..... Rig.

VICTORIA COUNTY

Lion Oil & Ref. Co.'s No. 2 McFaddin, M. Traviers Sur... Total depth 6,454 ft.; set 5 3/16-in. casing 3,705 ft.; sidetracking sand 3,723 ft.
Newton et al's No. 1 West ..... Drlg. sand 1,550 ft.

WASHINGTON COUNTY

Penn-Tex Oil Co.'s No. 2 Kamas Brenham, S. M. Williams Sur. ..... Location.
Vegua Oil Co.'s No. 1 P. Graves, S. Clampet Sur. ..... Derrick.

SOUTH LOUISIANA

CALCASIEU PARISH

Crawford Doyle's No. 1 Johnson, Sec. 23-9s-13w ..... Shut down 875 ft.
J. O. Davis' No. 1 Industrial, Sec. 29-9s-10w ..... Drlg. shale 6,492 ft.
Wilfred Lahay's No. 1 Jardell, Sec. 16-10s-12w ..... Drlg. sand and gravel 641 ft.
Dr. Thomas et al's No. 1 John Hewitt ..... Location.
Vacuum Oil Co.'s No. 1 Wait, Iowa ..... Drlg. gumbo 1,176 ft.

CAMERON PARISH

Shell Petroleum Corp.'s No. 2 State, Black Bayou ..... Building derrick.
Shell Petroleum Corp.'s No. 16 Watkins, Black Bayou ... Rig.
Vacuum Oil Co.'s No. 1 Cameron Meadows, Sec. 21-14s-13w ..... Total depth 5,248 ft.; sidetracked to oil sand 5,170 ft.; cem. casing.
The Texas Company's No. 6 State, Calcasieu Lake ..... Drlg. salt 3,206 ft.
The Texas Company's No. 7 State, Calcasieu Lake ..... Location.

IBERIA PARISH

The Texas Company's No. 6 Vermillion Bay ..... Driving piling.
Jefferson Lake Oil Co.'s No. 10 Lake Peigneur, Jefferson Island ..... Rig up to workover 990 ft.

IBERVILLE PARISH

Gulf Ref. Co.'s No. 1 Gay, Bayou Choctou ..... Drlg. gumbo 2,101 ft.
Shell-Pet. Co.'s No. 5 Wilbert, White Castle ..... Sandy shale 5,210 ft.; cem. 9⅝-in. casing 5,152 ft.
Standard Oil Co.'s No. 7 Wilbert, Bayou Blue ..... Derrick.
Standard Oil Co.'s No. 8 Wilbert ..... Hard red sand and salt 3,646 ft.; set 7-in. casing 3,526 ft.; drilled plug and cored 3,650 ft.; fishing core barrel.
Standard Oil Co.'s No. 1 E. B. and S. P. Schwing, Bayou Blue ..... Drlg. sandy shale 4,772 ft.
Standard Oil Co.'s No. 3 Schwing (workover) ..... Drlg. sandy shale 2,778 ft.
Standard Oil Co.'s No. 1 Baist Cooperage, Bayou Blue ... Rdg. derrick.

JEFFERSON DAVIS PARISH

H. T. McClain et al's No. 1 Trimble Atterbury, Welsh, Sec. 16-9s-5w ..... Shale 1,183 ft.; cem. 10-in. casing 397 ft.
Vacuum Oil Co.'s No. 1 Tietje, Roanoke ..... Drlg. gumbo 3,960 ft.

PLAQUEMINE PARISH

Gulf Ref. Co.'s No. 2 Buras Levee Board ..... Rigging up.
Humble Oil & Ref. Co.'s No. 2 Cockrell-Moran, Lake Grand Ecaille ..... Total depth 3,209 ft.; 12-in. casing parted; fishing.
The Texas Company's No. 4 State, Garden Island ..... Total depth 4,414 ft.; drlg. sidetracked hole 3,536-3,676 ft., gumbo; cem. 3,058 ft. 6¾-in. casing and 612 ft. 6⅝-in. casing.
The Texas Company's No. 5 State, Garden Island ..... Location.

ST. JAMES PARISH

Convent Oil Co.'s No. 2 Jacobs, Sec. 28-11s-4e ..... Rebuilding derrick; total depth 1,834 ft.

ST. MARTIN PARISH

The Texas Company's No. 3 Iberville Land ..... Derrick.
The Texas Company's No. 4 St. Martin, Hager ..... Derrick.
The Texas Company's No. 5 St. Martin, Hager ..... Drlg. gumbo 1,018 ft.

ST. TAMMANY PARISH

Washington-St. Tammany's No. 2 Cossack, Sec. 5-6s-10e.. Total depth 1,520 ft.; resetting surface casing.

TERREBONNE PARISH

United Prod. Corp.'s No. 9 Minor, Houma ..... Drlg. sandy gumbo 3,000 ft.
The Texas Company's No. 1 L.L.&E., Bay St. Elaine .... Derrick.
The Texas Company's No. 5 State, Bay St. Elaine ..... Cap rock 920-1,012 ft.; cem. 12½-in. casing 1,009 ft.
The Texas Company's No. 4 State, Caillou Island ..... Location.
The Texas Company's No. 5 State, Caillou Island ..... Drlg. salt 5,665 ft.
The Texas Company's No. 6 State, Caillou Island ..... Location.
The Texas Company's No. 6 State, Bay St. Elaine ..... Location.
The Texas Company's No. 3 State, Dog Lake ..... Abandoned in salt 6,208 ft.; top salt 5,902 ft.
The Texas Company's No. 4 La. L. & E., Four Isle ..... Drlg. sand and shale 6,933 ft.
The Texas Company's No. 2 La. L. & E., Bay Junop .... Drlg. sand rock 6,532 ft.
The Texas Company's No. 6 State, Lake Pelte ..... Oil sand 1,338 ft.; cem. 12½-in. casing 1,275 ft.
The Texas Company's No. 6 State, Lake Barre ..... Location.
The Texas Company's No. 7 State, Lake Barre ..... Derrick.
The Texas Company's No. 8 State, Lake Barre ..... Derrick.
The Texas Company's No. 9 State, Lake Barre ..... Location.

VERMILLION PARISH

Pure Oil Co.'s No. 1 Southwest, Louisiana Land Co., Gueydan ..... Rig.

WEST FELICIA PARISH

Putnam Syndicate's No. 1 Como Plantation, Sec. 51-1e-4w. Total depth 3,738 ft.; fishing stuck drill stem.

WILDCAT OPERATIONS IN KANSAS

(Continued from Page 48)

ELK COUNTY

Aladdin's No. 1 Donnell, NE SE SW Sec. 26-29-10 ..... Wilcox 2,386-2,411 ft.; show oil; shut down.

ELLSWORTH COUNTY

Alyward et al's No. 1 Stratman, SE NW SE Sec. 1-17-10w ..... Rig.
Aladdin Pet.'s No. 1 Stoddenberg, C SW Sec. 22-16-10w... Drlg. 955 ft.
Milton et al's No. 1 Kester, SE NE Sec. 6-14-9w ..... Shut down 330 ft.
Aladdin and Carter Oil Co.'s No. 1 Barecky, C NW Sec. 3-16-10w ..... Shut down 2,718 ft.

FORD COUNTY

Swain et al's No. 1 Taylor, C NW Sec. 21-25-24w ..... Shut down 4,300 ft.

GOVE COUNTY

Johnson and Atlantic's No. 1 Wright, SE NE Sec. 11-12-27w ..... Drlg. 3,740 ft.
Valerius & Baucher Oil Co.'s No. 1 Todd, NW cor. Sec. 24-13-27w ..... Shut down 4,467 ft.

GRAHAM COUNTY

Schleimeyer et al's No. 1 Clark, SW NE NE Sec. 11-9-25w. Drlg. 3,346 ft.
Gulf Coast Oil Co.'s No. 1 Johnson, C S half Sec. 27-8-25w. Shut down 4,370 ft.

GRANT COUNTY

McKenna et al's No. 1 Sullivan, NE cor. Sec. 12-29-38w.. Completed 2,528-2,710 ft.; 3,500,000 ft. of gas.

HARPER COUNTY

Atkinson et al's No. 1 Misak, SE cor. Sec. 25-34-6w ..... Drlg. 5,045 ft.
Beeler et al's No. 1 Bear, C NE Sec. 21-36-6w ..... Shut down 1,830 ft.

KINGMAN COUNTY

Skelly Oil's No. 1 Miles, NE cor. Sec. 30-27-10w ..... 1,635-40 ft. 2,000,000 ft. gas; at 2,005-20 ft., 6,000,000 ft. gas; at 2,133-42 ft., 3,000,000 ft. gas; drlg. 2,750 ft.

KIOWA COUNTY

Phillips-Prairie's No. 1 Bean, NE SE Sec. 10-30-17w ... Fishing 5,117 ft.
McKenna et al's No. 1 Ralston, C NE Sec. 14-28-20w .... Rig.

LYONS COUNTY

Griffith et al's No. 1 King, NW cor. Sec. 8-19-10 ..... Shut down 910 ft.

MARION COUNTY

Aladdin Pet.'s No. 1 Koch, NW NE Sec. 36-17-3 ..... Rig.
Midwell's No. 1 La Master, NW cor. Sec. 31-22-4 ..... Fishing 625 ft.

MARSHALL COUNTY

Swicker & Sincox's No. 1 Remple, C N half NW Sec. 24-4-9 ..... Water 1,243-45 ft.; abnd.
Brazier et al's No. 1 Runkel, SE NW Sec. 13-2-6 ..... Abandoned 50 ft.

McPHERSON COUNTY

United Pet. Co.'s No. 1 Kaigi, NE cor. Sec. 20-19-1w .... Drlg. 1,115 ft.
Henderson & Holden's No. 1 Sommerfield, NE SW Sec. 23-19-1w ..... Fishing 2,100 ft.
Aladdin Pet.'s No. 1 Rudolph, NW NE Sec. 36-18-3w .... Shut down 250 ft.
Slick et al's No. 1 Randell, C SW SW Sec. 36-17-5w .... Drlg. 2,185 ft.
Aladdin Pet. Co.'s No. 1 Larson, C NW Sec. 22-18-4w ... Rig.

MORTON COUNTY

Hydraulic Oil Co.'s No. 1 State Land, NW SE Sec. 22-24-43w ..... Fishing 5-in. csg. 3,460 ft.

MORRIS COUNTY

Urschell et al's No. 1 Bersuch, NW SE NW Sec. 10-17-7.. Machine.
Hankerson et al's No. 1 Cessman, SW SE Sec. 24-16-9 .. Rig.
Urschell et al's No. 1 Scott, NE NW Sec. 6-16-6 ..... Abandoned 2,420 ft.

NESS COUNTY

Gypsy Oil Co.'s No. 1 Coleman, C SW NE Sec. 25-17-25w.. Rig.

NORTON COUNTY

Richards et al's No. 1 Colby, Sec. 17-4-21w ..... Rig.

OSAGE COUNTY

Briggs & Smith's No. 1 Wood, SE NW Sec. 21-14-15 .... Drlg. 950 ft.

PAWNEE COUNTY

Phillips' No. 1 Cuthbertson, NE cor. Sec. 27-20-8w ..... Drlg. 3,658 ft.

PRATT COUNTY

Wilcox O. & G. Co.'s No. 1 Bappin, SW NW Sec. 7-26-15w ..... Fishing 4,353-95 ft.; water.

RAWLINS COUNTY

Danciger Oil & Ref.'s No. 1 Unknown, SW cor. Sec. 3-2-35w ..... Fishing 2,005 ft.

RENO COUNTY

Braden et al's No. 1 Thersen, SE NE Sec. 6-22-4w ..... Wilcox 3,912-25 ft.; water; T. D. 4,030 ft.; abnd.
Shell Pet. Corp.'s No. 1 Popp, NW cor. Sec. 11-25-5w .... Wilcox 3,907-10 ft.; hole full of water; drlg. 3,995 ft.

RICE COUNTY

Allison-Fitzwilliams' No. 1 Blake, NE NW Sec. 9-18-10w.. Rig on ground.
Gypsy Oil Co.'s No. 1 Koenig, SW NE Sec. 10-20-10w .... Drlg. 470 ft.
Muth Bros.' No. 1 Beyers, NE NW Sec. 21-19-9w ..... Drlg. 2,000-02 ft.; 3,000,000 ft. gas; mudding off gas to drill deeper.
Jasper & Beschka's No. 1 Cupp, SW NE Sec. 22-18-9w .. 7,500,000 ft. gas; T. D. 3,522 ft.; water; abnd.
United Pet. Co.'s No. 1 Willman, NE cor. Sec. 29-21-9w .. Drlg. 3,553 ft.

RUSH COUNTY

Dewey & Mitchell's No. 1 Greenawalt, C SW Sec. 17-19-16w ..... Rig.
Syndicate Oil Co.'s No. 1 Lannen, C SW Sec. 11-18-16w.. Drlg. 1,510 ft.

RUSSELL COUNTY

Empire Oil & Ref. Co.'s No. 1 Sherwood, SE NW NW Sec. 21-14-13w ..... Water 3,240-78 ft.; T. D. 3,332 ft.; abnd.
Austin Drlg. Co.'s No. 1 Rochfellow, SE cor. Sec. 6-13-12w ..... Drlg. 2,885 ft.
Gilbreath et al's No. 1 Bratton, C NE Sec. 33-11-13w ... Shut down 2,155 ft.

SEDGWICK COUNTY

Streeter & Stearn's No. 1 Tobin, SW SE NE Sec. 5-22-2.. Shut down 1,330 ft.
Buck et al's No. 1 McNananan, NE NW NW Sec. 2-29-1.. Rig.

SALINE COUNTY

Sampson et al's No. 1 Sudenderf, NE SE Sec. 30-14-2w.. Drlg. 1,540 ft.
Twin Mounds Oil Co.'s No. 1 Weis, C W half NE NW Sec. 20-13-4w ..... Shut down 2,500 ft.

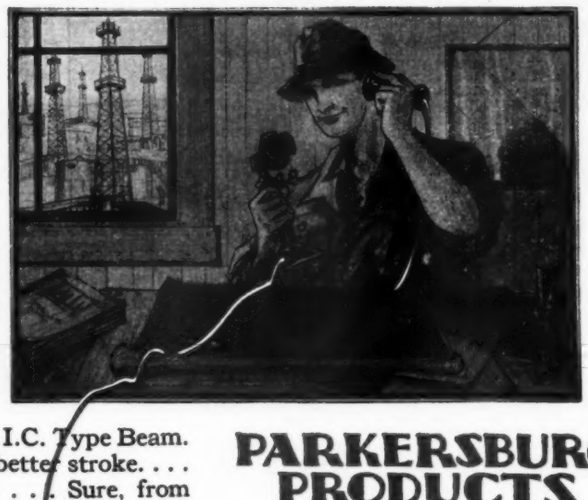
STEVENS COUNTY

McNabb and Mid-Kansas' No. 1 Rhinehart, C NE Sec. 23-32-39w ..... Drlg. 1,612 ft.

WASHINGTON COUNTY

Sincox et al's No. 1 Penwell, NW SE NE Sec. 16-3-3 .... Shut down 1,720 ft.

"Sure, it'll be ready, Bill-"



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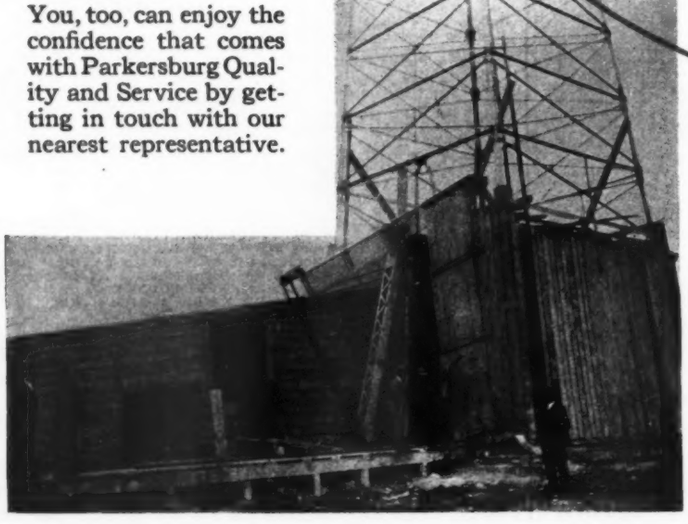

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147-A

OKLAHOMA FIELDS

(Continued from Page 42)

to be used by the companies is to run the salt water from other producing wells into the hole, where it will be allowed to filter back into the earth. Shallow wells have been used for this purpose with some success. The disposal of salt water in the Osage has become a serious problem.

Deep Rock Oil & Refining Co.'s No. 2 Douglass (50 acres), SW cor. NE, Section 30-8-8, south of the Wewoka Townsite, went dead after flowing two days and the operators were swabbing the well. It made 1,230 bbls. in 14 hours on a swabbing test. The well will be drilled deeper in an effort to find another pay.

Boettcher Oil & Gas Co.'s No. 1 Jackson, C NE SW, Section 11-7-8, Hughes County, was completed for 20,000,000 feet of gas from sand at 2,937-60 feet.

West of Sasakwa Pool, Indian Territory Illuminating Oil Co.'s No. 2 Fleet, NE cor. NW SE, Section 13-6-7, Seminole County, has gone to water. The test was drilled to a total depth of 2,900 feet and plugged back to 2,850 feet where the casing was ripped. After testing dry it was plugged back to 2,750 feet and the casing ripped again, and it started to produce 22 bbls. of oil a day and 2,000,000 feet of gas.

Near the Bowlegs Pool, Prairie Oil & Gas Co. and Tom Slick Oil Co.'s No. 1 Maxey, SE cor. NW, Section 1-8-6, Seminole County, was making 6,000,000 feet of gas and spraying oil. The showing of oil and gas was found in sand at 3,952 feet, and the well was drilled to 4,015 feet. The test is on the eastern edge of the production in the field. Two dry holes have been completed south of the test.

Phillips Petroleum Co. and Hicks Drilling Co.'s No. 1 Crouch, NW cor. SW, Section 5-6-5, wildcat near Sacred Heart, in southeastern Pottawatomie County, is shut down at 4,404 feet. The Wilcox sand was found from 4,395-4,404 feet. The well has 2,200 feet of fluid in the hole making no production, the last gauge being 95 bbls. about a week ago. It was drilled 1 foot deeper during the week.

Oklahoma City's Late Wells

Huge wells continue to be found in the north end of the Oklahoma City Field. Plains Oil Co.'s No. 1 Alexander, SE cor. NW NW, Section 2-11-3w, was completed for 6,006 bbls. in 2 hours and 10 minutes and was shut in on account of having filled all available tankage on the lease. The volume of gas was estimated at 64,000,000 feet a day. The well was producing at the rate of 72,000 bbls. a day. Oil was found in the Wilcox sand at 6,275-6,405 feet.

Oils Inc.'s No. 1 Hawathay, SE cor. SW SE NW, Section 2-11-3w, is believed to have drilled into iron at 4,800 feet. It was given an acid bottle test and was found to be 2½ degrees off vertical. Operators were trying to determine which one of the offsets the test has drilled into. Three producers offset the test, Jack Shaffer's No. 1 Vinita Park is offsetting the test to the south; Minnehoma Oil Co.'s No. 1 Pugh, to the west, and Hall-Briscoe's No. 3 Lindsey to the east. No offset has been drilled to the north of the Hathaway test. Tests were also made at all the offset producers, while the Hathaway was drilling but operators were unable to decide on anything definite.

Other tests completed in the Oklahoma City Field during the week were as follows: Phillips Petroleum Co.'s No. 1 Hawkins, NE cor. SW NE, Section 2-11-3w, 156 bbls. in 1½ hours from sand at 6,160-6,435 feet; Don Leon Oil Co.'s No. 1 Hunsicker, SW cor. NW NW, Section 2-11-3w, 159 bbls. in 4 minutes, with 50,000,000 feet of gas a day; Tom Slick Oil Co.'s No. 2 Clegg, NE cor. NW SW, Section 2-11-3w, 782 bbls. in 2 hours and 100,000,000 feet of gas from sand at 6,180-6,564 feet; Phillips Petroleum Co.'s No. 1 Roose, NE cor. NW NE, Section 2-11-3w, made 3,405 bbls. in 8 hours from sand at 6,130-6,535 feet; Tom Slick Oil Co.'s No. 3 Campbell, SE cor. NE NE, Section 3-11-3w, 2,215 bbls. in 1 hour from sand at 6,285-6,555 feet, and 48,000,000 feet of gas a day; Hall & Briscoe's No. 6 Holmes, NW cor. SE, Section 10-11-3w, 8,248 bbls. in 3¼ hours from sand at 6,325-6,524 feet, gas volume estimated at 43,000,000 feet; Capital Oil Co.'s No. 1 Campbell, NW cor. SW, Section 2-11-3w, was shut in after making 40,000,000 feet of gas at 6,380-6,490 feet.

The wildcat test of George D. Warr and others, No. 1 Castle, SW cor. NW, Section 20-11-3w, west of production in the Oklahoma City Field, found water in the Wilcox sand at 7,350-93 feet, and was drilling deeper.

Greater Seminole Production

The production from the Greater Seminole area for the week ending December 8 averaged 204,185 bbls. per day from 2,873 wells. The first 12 pools listed below comprise the Seminole district, which averaged 137,560 bbls. a day from 1,880 wells.

Pool—	Wells	Bbls
Little River	372	23,246
East Little River	84	10,372
Carr City	75	14,548
Maud	134	2,483
Mission	93	6,217
Bowlegs	279	13,437
Earlsboro	283	17,910
South Earlsboro	27	8,753
East Earlsboro	160	18,653
Seminole	255	14,081
East Seminole	33	1,975
Searight	85	5,885
Total Seminole	1,880	137,560
Allen	276	13,015
Asher	26	796
Wanette	50	10,281
Konawa	108	15,745
Sasakwa	50	4,704
St. Louis	483	22,080
Total	2,873	204,185

Greater Seminole Shipments

The pipe line shipments from the Greater Seminole area totaled 181,287 bbls. for the week ending December 8. The daily average from the various pools was as follows:

Company—	Seminole (bbls.)	Asher, Pearson, St. Louis (bbls.)	Konawa (bbls.)
Barnsdall	1,829	....	....
Champlin	4,543	....	550
Consolidated	....	2,851	....
Cosden	7,093	....	....
Deep Rock	2,385	960	....
Empire	7,613	....	....
Gulf	21,161	2,357	1,213
Magnolia	7,573	5,816	600
Oklahoma	16,363	100	175
Prairie	7,331	3,094	2,332
Prod. & Ref.	2,150	....	....
Pure	6,862	....	....
Shell	4,476	400	914
Stanolind	28,141	7,792	3,292
Texas	8,000	3,909	....
Tidal	8,853	3,024	....
White Oak	275	....	....
Total	134,648	30,303	10,634
Tank cars	2,645	3,057	
Grand total	137,293	33,360	

Oklahoma City Production

The following wells were on production during the seven days ending December 8, in the Oklahoma City Pool, under the proration orders. All the other completed wells were shut in and will be opened and produced according to the curtailment.

Acme:	S-T-R	Wells	Bbls.
Armourdale	2-11-3w	1	422
Anderson-Prichard:			
Gibbons	1-11-3	4	5
Graham	2-11-3	1	68
Habegger	14-11-3	1	60
Roosevelt Place	2-11-3	5	710
Brown et al	14-11-3	1	430
Blackstock et al:			
Harvey	15-11-3	1	421
Blackwell:			
Scruggs	35-12-3	1	103
British-American:			
Eckroat	10-11-3	1	777
Coline:			
Olds	24-11-3	10	186
Warren	18-11-2	8	365
Continental:			
Sudik	6-10-2	4	326
Cromwell-Franklin:			
T. Park	13-11-3	31	4,276
Denver:			
Harvey	15-11-3	1	229
Whitten	14-11-3	1	391
Don Leon:			
Hunsicker	2-11-3	1	23
Empire:			
Gustine	1-11-3	1	45
Hall-Briscoe:			
Holmes	10-11-3	5	3,327
Lindsey	14-11-3	3	1,525
Muller	2-11-3	1	669
I. T. I. O.:			
Banta	18-11-2	1	8
Barker, Drake	14-11-3	1	41
Billen	26-11-3	1	49
Bod. Anderson	30-11-2	3	8
Bodine, A.	24-11-3	6	48
Borden	23-11-3	1	205
Broknw, C.	18-11-3	4	38
Butterfield	11-11-3	1	329
Button	19-11-2	5	9
Canfield, Butt	19-11-2	3	262
Carrico	14-11-3	5	872
Coppinger	11-11-3	8	772
Coriff	11-11-3	5	183
Drake	14-11-3	2	301
Eacock	11-11-3	2	72
Emmerson, N.	30-11-2	11	161
Farley, E.	24-11-3	1	161
Farley, L.	19-11-2	4	18
Farley, Fuzzell	19-11-2	2	267
Ferndale, Comm.	11-11-3	5	153
Funk	11-11-3	1	203
Hammer	11-11-3	2	609
Handl	11-11-3	1	91
Ivanhoe	15-11-3	2	159
Johnson	25-11-3	9	273
Jones, H. W.	1-11-3	4	435
Jones	31-11-2	14	2,388
Jones, Comm.	1-11-3	4	301
Knox, May	14-11-3	4	1,375
K. Henning	24-11-3	3	31
Lawrence Place	15-11-3	3	752
Lawton	11-11-3	1	74
Lemmon	11-11-3	3	382
Magnolia Heights	14-11-3	1	84
Mid-Texas	23-11-3	1	187
M. K. & T.	35-12-3	4	641
Okla. State Land	36-11-3	8	1,067
Pasadena Heights	14-11-3	4	764
Peterson, Sad	25-11-3	8	1,171
Phelans	15-11-3	2	28
Precure, A.	11-11-3	1	199
Salasman	32-11-2	5	39
Sudik	31-11-2	11	2,571
Thelmer, E.	12-11-3	8	5,089
Thom. Fuzzell	13-11-3	3	83
Trosper	13-11-3	10	1,721
Trosper, Clar.	14-11-3	4	1,253
Trosper, C. E.	11-11-3	1	296
Trosper, E.	14-11-3	2	1,111
Trosper, H. G.	14-11-3	6	1,278
Trosper, L.	12-11-3	2	168
Trosper, Hughes	11-11-3	1	115
Unsell, M.	23-11-3	6	1,175
Unsell-Krager	23-11-3	3	26
Waters	23-11-3	6	262
Weber-Wall	14-11-3	1	37
Warner, Farley	23-11-3	3	648
Wheeland	10-11-3	1	284
Wilkie-Ander.	25-11-3	3	26
I. T. I. O. et al:			
Boulevard, Add.	14-11-3	1	40
Julian:			
Walker	10-11-3	1	446
Mabee:			
Rusty	10-11-3	1	2,945
Marco:			
Holder	2-11-3	1	429
Mid-Kansas:			
Browning	18-11-2	2	29
Fortson	24-11-3	5	47
Mollman	23-11-3	4	331
Trosper, D. B.	19-12-1	1	169
Minnehoma:			
Pugh	2-11-3	1	1,540
Oils, Inc.:			
Ross	2-11-3	1	1,307
Phillips:			
Hankins	2-11-3	1	96
Jones	1-11-3	1	72
Phillips-Sinclair:			
Lybrand	2-11-3	1	1,584
Prairie-Slick:			
Hiddleston	19-11-2	7	303
Sigman	32-11-2	7	679
Russell:			
Roosevelt	2-11-3	1	186
Shaffer, J. C.:			
Childs	14-11-3	1	157
Shaffer et al:			
Vinita Park	2-11-3	2	469
Shell:			
Egermeir	23-11-3	1	112
Petty	30-11-2	7	99
Sinclair:			
School Land No. 54	36-11-3	16	2,250
School Land No. 67	36-11-3	4	737
Stamper	30-11-2	6	219
Vencl	31-11-2	16	3,433
Sinclair-Amerada:			
Kiker	30-11-2	10	24
Sinclair:			
Donnell	23-11-3	1	189
Skelly et al:			
Ainsworth	10-11-3	4	1,133
Hoops	31-11-2	8	478
Tanner	10-11-3	2	815
Slick, T. B.:			
Campbell	3-11-3	2	281
Classen	2-11-3	3	592
Classen-Edwards	3-11-3	1	2,015
Clegg	2-11-3	2	112
Daugherty	2-11-3	1	132
Foote	2-11-3	2	790
Frisco	3-11-3	1	208
Frost Heights	10-11-3	4	257
Glidden	13-11-3	2	57
Moore	2-11-3	1	137
Slick et al:			
Alexander	2-11-3	2	40
Baker	1-11-3	5	22
Danreuther	2-11-3	3	155
Houghton	1-11-3	1	57
Miller	2-11-3	1	32
Townsend	1-11-3	2	158
Carter	1-11-3	1	130
Hoops	31-11-2	8	559
Wirt Franklin:			
Eacock	11-11-3	1	119
Holder	2-11-3	2	165
Lowery	12-11-3	10	1,527
Page, Tucker	35-12-3	1	64
Shehan	2-11-3	2	208
Thelmer	2-11-3	12	2,913
Thelmer-Butt	11-11-3	1	690
Wright	2-11-3	3	534
Total	662		77,936
Last week	653		99,438

New wells 9; decrease 21,502 bbls.; average per well for pool 118 bbls.

Oklahoma City Shipments

The total crude oil shipments from the Oklahoma City Field for the week ending December 8 were 550,529 bbls. The daily average shipments by companies were as follows:

Company—	Bbls.
Empire	19,505
I.T.I.O.	4,954
Magnolia	12,219
Oklahoma	15,601
Prairie	1,435
Stanolind	14,999
Sinclair	*5,880
Shell	1,816
Tidal	1,445
Capital	357
Peacock & Peveto	436
Total	78,647

*To storage.

Carter County

Magnolia Petroleum Co.'s No. 1 McCrory, SE cor., Section 10-1s-3w, is drilling at 460 feet. Carter Oil Co. has the rig up for No. 1 Grooms, SE cor. NE NE, Section 24-1s-3w. Magnolia Petroleum Co.'s rig is up for No. 3 M. Dickerson, NW cor. NE SE, Section 24-1s-3w, Tatums Pool. The Texas Company's No. 5 Eaves, SE cor. SW, Section 24-1s-3w, is drilling at 450 feet. Frank Gouin and others' No. 1 Burton, SE cor. SW NE, Section 31-1s-2w, is spudding. Trevelyn Oil Co.'s No. 1 S. Hooks, NW cor. SW SE, Section 13-1s-3w, has been abandoned at 2,692 feet. Magnolia Petroleum Co.'s No. 3 Brady, SE cor. SW, Section 13-1s-3w, has been completed for 46 bbls. in sands 2,190-2,236 feet and 2,238-64 feet. Anderson and others' No. 6 Eaves, NE cor. NW SW, Section 24-1s-3w, made 1,200 bbls. from sand 2,343-2,455 feet. Magnolia Petroleum Co.'s No. 1 Weis, SW cor. SE SW, Section 19-1s-2w, is dry and abandoned at 3,401 feet.

Coal County

Blackwell Oil & Gas Co.'s No. 1 Gumm Brothers, NW cor., Section 26-3-9, is a dry hole at 5,055 feet. A. M. Nanarden and others' No. 1 Foshee, SW cor. NE, Section 31-1-9, has been abandoned at 1,668 feet.

Creek County

Deep Rock Oil Corp. has built the rig for No. 8 Waccocha, SW cor. NE NE, Section 17-17-11. Dixie Drilling Co. and others' No. 1 Barnett, SE cor. NE SW, Section 19-15-10, is a rig. Sample & Mann and others' No. 2 Saad, SW cor., Section 17-19-9, has been completed for 70 bbls. in sand 2,250-90 feet. C. L. McMahon and Tim Wheeler's No. 1 Moody, NW cor., Section 17-17-10, has been abandoned at 3,143 feet. J. H. Wright estate's No. 1-A McKellop, NE cor. SE SW, Section 23-17-10, is pumping 12 bbls. from sand 2,497-2,538 feet, total depth 2,557 feet. L. A. Carpenter's No. 6 Cloud, SW cor. NE SW, Section 22-17-11, swabbed 30 bbls. from sand 1,548-68 feet, total depth 1,575 feet. Bryan Petroleum Co.'s No. 3 Jackson, SE cor. NW SW, Section 8-16-11, has been completed for 1,250,000 feet of gas in sand 1,715-63 feet after plugging back from 2,170 feet.

Garfield County

Charles E. Knox' No. 13 Crooks, NE cor. SE NE, Section 26-22-4w, had sand 1,029-45 feet and was completed for 450,000 feet of gas.

Grady County

Meridian Gas Co.'s No. 1 Melton, SW cor. SE, Section 30-4-7w, has been abandoned at 2,440 feet.

Grant County

Consolidated Gas Co.'s No. 1 Secatt, C SE SW, Section 35-28-3w, has been deepened to 4,406 feet and then plugged back to 4,272 feet and completed for 6,500,000 feet of gas. No. 2 Forsythe, C SE NW, Section 2-27-3w, gauged 30,000,000 feet of gas from chat 4,190-4,290 feet.

Haskell County

A. W. Ault's No. 1 L. Hall, SE cor. NW NE, Section 25-9-19, is spudding.

Hughes County

Jarvis & Holmes' No. 1 Narcome, SE cor. NW SW, Section 9-7-8, is a cellar.

Kay County

Wilright Gas Co. is moving the tools in for No. 1-A Wildegrade, NE cor. SW, Section 14-27-1. J. S. Pine's No. 1 Ogg, SW cor. SE SE, Section 35-25-1w, is spudding.

Latimer County

Midwestern Oil & Gas Co. has the cel-

lar dug for No. 1 Johnson, C SE NW, Section 15-6-21.

Logan County

The Prairie Oil & Gas Co.'s No. 1 Elrod, NE cor. NW SW, Section 31-19-4w, has been completed for 40 bbls. at 5,845 feet after plugging back from 5,900 feet.

Love County

George Pace and others' No. 1 Buckheart, NE cor. NW, Section 13-8s-1, is a rotary rig.

Muskogee County

H. L. Jolly's No. 2 Rentie, SE cor. SW SW NW, Section 9-15-18, is rigging up. Haraha & Dulaney's No. 2 J. Ware, NE cor. NW SW, Section 8-15-15, has been abandoned at 1,253 feet. J. M. Foltz and others' No. 1-A Woodall, SE cor. SW NW, Section 20-15-16, has been deepened to 1,874 feet and abandoned. Louann Oil Co.'s No. 3 A. Buffington, NW cor. NE SE, Section 14-14-17, has been abandoned at 1,816 feet.

Okfuskee County

Mid-Continent Petroleum Corp.'s No. 2-A Dolly Dindy, SW cor. NW NE, Section 31-11-11, is dry and abandoned at 3,085 feet.

Oklahoma County

H. H. Patton and others' No. 1, Block 5, Lot 34, Schilling Addition, NW cor. SW, Section 10-11-3w, Oklahoma City Pool, is a rig. The rig is being erected for No. 1, Block 4, Schilling Addition, NW cor. NE NW SW, Section 10-11-3w. Great Southern Petroleum Co. has the rig up for No. 1 Bucher, Block 2, Lot 32, Weesner Addition, NW cor. SE SW NW, Section 10-11-3w. J. C. Verser and others' No. 1 Strauch-Burnett, Block 13, Lot 16, Tappan Heights of Fruitland Addition, SW cor. NE SE, Section 15-11-3w, is a rig. Stout-Pryor Petroleum Co. has the cellar dug for No. 1 Wheeler, Block 23, Fruitland Addition, NW cor. SW NW SE, Section 15-11-3w. Blackwell Oil & Gas Co. and others' No. 1 Scruggs, NW cor. SE NE SE, Section 35-12-3w, has been completed for 725 bbls. in four hours in sand 6,060-6,398 feet. Mid-Kansas Oil & Gas Co.'s No. 1 Ball, NW cor. NE, Section 19-12-1w, is dry and abandoned at 6,235 feet. Phillips Petroleum Co.'s No. 1 Hankins, CWL NE SW NE, Section 2-11-3w, made 670 bbls. in four hours from sand 6,160-6,435 feet. No. 1 Roose, SW cor. NE NW NE, Section 2-11-3w, has been completed for 3,405 bbls. in eight hours in sand 6,130-6,535 feet. Russell Petroleum Co.'s No. 1 Roosevelt, NE cor. NW NW NE, Section 2-11-3w, had sand 6,170-6,463 feet and made 2,500 bbls. in four hours. T. B. Slick estate's No. 2 Foote, NE cor. SE SW, Section 2-11-3w, has been completed for 9,332 bbls. in 23½ hours in sand 6,170-6,479 feet. Skelly Oil Co.'s No. 1 Harper-Turner, SE cor. NE NE NE, Section 3-11-3w, produced 9,977 bbls. in four hours from sand 6,263-6,434 feet. Julian and others' No. 1 Walker, NW cor. SE SE, Section 10-11-3w, made 14,359 bbls. in 16¾ hours producing from sand 6,406-95 feet. J. E. Mabee's No. 1 Rusty, SW cor. SE NE, Section 10-11-3w, has been completed for 43,165 bbls. in 17½ hours from sand 6,338-6,450 feet. Indian Territory Illuminating Oil Co. and others' No. 1 Lemmon, SW cor. SE, Section 11-11-3w, flowed 1,126 bbls. in 19¾ hours from sand 6,298-6,580 feet. No. 3 Clarence Trosper, SW cor. NW NE, Section 14-11-3w, has been completed for 6,456 bbls. in sand 6,460-6,510 feet. Coline Oil Co.'s No. 1 Olds, C SE NW, Section 24-11-3w, has been deepened from 6,332 feet to 6,377 feet and made 3,445 bbls. No. 5 Olds, NW cor. NE NW, Section 24-11-3w, has been deepened from 6,435 feet to 6,467 feet and produced 3,038 bbls. No. 6 Olds, NE cor. NW NW, Section 24-11-3w, was deepened from 6,465 feet to 6,543 feet and made 1,117 bbls. in 12 hours. No. 9 Olds, SW cor. NW, Section 24-11-3w, made 2,225 bbls. in 12 hours after being deepened from 6,500 feet to 6,670 feet. No. 3 Clauer, SE cor., Section 25-11-3w, has been deepened from 6,514 feet to 6,532 feet and shot with 40 quarts, making 4,609 bbls. No. 6 Clauer, SE cor. SW SE, Section 25-11-3w, produced 4,662 bbls. from 6,720 feet after it was plugged back from 6,732 feet. No. 11 Clauer, SW cor. NW SE, Section 25-11-3w, has been completed for 3,937 bbls. in 12 hours in sand 6,550-87 feet. Indian Territory Illuminating Oil Co. and others' No. 8 Peterson, SW cor. NE SW, Section 25-11-3w, made 4,908 bbls. in sand 6,420-6,589 feet. Sinclair Oil & Gas Co.'s No. 6 School Land No. 67, SW cor. NE SE, Section 36-11-3w, has been abandoned at 6,755 feet.

Okmulgee County

William Sherry and Murta's No. 1-A Pense, C SE NE, Section 20-16-11, has been completed for 3,000,000 feet of gas in sand 2,106-13 feet. Whitcomb and others' No. 3 Harris, SW cor. NE NE, Section 1-14-14, made 5 bbls. in sand 629-77 feet. E. J. Lambert's No. 3 R. Atkins, SW cor. NW SE, Section 17-13-15, made 1,500,000 feet of gas from sand 1,695-1,700 feet.

Osage County

Bacon & Voyles made location for No. 9, SE cor. NW SW, Section 30-23-9. Utilities Production Co.'s No. 23, SE cor. NW SW, Section 6-26-7, has been completed for 3,000,000 feet of gas in sand 1,350-91 feet.

Payne County

Mid-Kansas Oil & Gas Co.'s No. 1 School Land, SW cor. NW SW, Section 16-19-5, is dry and abandoned at 3,905 feet.

Pittsburg County

C. O. Cannady has the rig up for No. 1 Bynum, SW cor. NE SW, Section 9-8-14. Cherokee Public Service Co. moved a machine in for No. 1 Eads, CSL N half SW SE, Section 5-8-16.

Pontotoc County

Sunray Oil Co. is building the rig for No. 10 S. M. Richey, SE cor. NE NE, Section 12-4-7.

Pottawatomie County

Payne and others moved the rig in for No. 5 Bullock, SE cor. SW NE, Section 22-6-3, West Asher Pool.

Roger Mills County

J. J. Rook and O. E. Palmer's No. 1 J. Davis, C NW NE, Section 4-11-26w, is an old well cleaning out to deepen from 2,840 feet.

Seminole County

Magnolia Petroleum Co. made location for No. 1 Ella Coker, NW cor. SW NE, Section 35-9-5. Amerada Petroleum Corp. is erecting the rig for No. 4 Tiger, NW cor. SE SW, Section 3-8-5, Carr City Pool. Pure Oil Co. staked location for No. 2 Tiger, NE cor. SE SW, Section 3-8-5. Deep Rock Oil Corp. is erecting the rig for No. 3 Douglas, SE cor. NW, Section 30-8-8, Wewoka Townsite Pool. Location has been made for No. 4 Douglas 50 acres, SE cor. NW, Section 30-8-8. No. 3 Douglas 60 acres, NE cor. SW, Section 30-8-8, is also a location. Droppleman, Lack & Whitworth's No. 1 Lack, SW cor. SE NW, Section 30-8-8, is rigging up rotary tools. Empire Oil & Refining Co.'s No. 4 Grounds, SE cor. NE SE, Section 3-8-5, Carr City Pool, made 2,269 bbls. from Wilcox sand 4,107-21 feet. Eason and others' No. 1 Fish, SE cor. SW SE, Section 19-7-8, Holdenville area, has been completed for 2,690 bbls. in Wapanucka sand 2,972-3,012 feet. Mid-Continent Petroleum Corp.'s No. 1 T. Harjo, NE cor. SW SW, Section 20-6-6, Konawa Pool, flowed 170 bbls. from broken sand 2,795-2,882 feet. Empire Oil & Refining Co.'s No. 3 Dameron, SW cor. SE NW, Section 20-6-6, flowed 290 bbls. from sand 2,850-67 feet.

Stephens County

Carl G. Wiley's No. 1 Wilson, NW cor. SW, Section 2-1s-5w, is rigging up rotary tools. Pace and others' No. 1 Toney and others, SW cor. SE NW, Section 27-2s-7w, has been completed for 40 bbls. in sand 1,501-06 feet.

Tulsa County

H. C. Deems and others' No. 2 Grayson, SW cor. NE NE, Section 18-19-14, is spudding. Murray and others moved a machine in for No. 1 Brown, CWL NW SE, Section 21-19-14. Owens and others' No. 2 Warner, CWL SE SW, Section 33-18-14, is a machine rigging up.

Wagoner County

Bryan Petroleum Co.'s No. 3 L. Jackson, NE cor. NW SW, Section 34-17-16, is drilling at 430 feet. Cartwright & Kyle's No. 1 C. Andy, CSL SW SE, Section 35-17-18, is spudding. J. A. Murphy's No. 1 Simmons, NE cor. NW, Section 34-18-15, is dry and abandoned at 1,832 feet.

SOUTHWEST TEXAS FIELDS

(Continued from Page 50)

is only down 100 feet but now has a supply of water.

Too Far to the West

Scanning the field over in the Laredo district the Humble's No. 50 Kohler in the west central part of Survey 164 and at the north end of the Kohler Field seems to have got too far to the west and also got too much salt water with the oil and gas at the producing horizon of the field at 1,860-87 feet and is drilling now at 1,903 feet.

In the southwestern part of Jim Hogg County where E. E. Watts, agent's No. 1 Gomez, due east of the shallow Charco Redondo Pool in Zapata, had a showing of gas at around 1,100 feet, he had plugged back to the sand after drilling to 2,000 feet. On the second test of the sand it produced fresh water instead of gas. It is now standing.

In Starr County where it looked like The Texas Company was going to bring in its second producer north of Roma, there is thus far no second producer. The first test of the sand in the No. 5-A Guerra at around 3,550 feet seemed not very encouraging and the company drilled to 3,840 feet and has now plugged back and will make a new test. The discovery well is No. 4-A Guerra and is about a mile northwest of the No. 5. Casing has been set for the second test with the hole plugged back to 3,641 feet and is waiting for the cement to set.

Of the 59 operations listed in the Laredo territory 35 are in Zapata County and 24 in the other three counties of that area. Zapata County therefore still leads the district for activity as it has done for some time. Fifteen of the 35 in Zapata are in the Escobas Pool or around the edge of it. The bulk of the wildcat activity is in the northern part of the county west and north of the Escobas Pool but none of them at the close of the week were in a position where they threatened anything serious in the line of production.

Balcones East of San Antonio

Penn Oil Co. topped the chalk at 1,940 feet in the No. 1 Kosub east of San Antonio in eastern Bexar County and made a test of the Taylor down to that depth but got nothing worth while and is now drilling deeper and will go to the Edwards lime. Just over the line in Wilson County to the east of the Rycade Oil Corp. is rigged up and ready to start in the No. 1 Johnson.

Going on to the northeast through Guadalupe and through the Balcones fault zone there is at this time almost nothing active. Suttle got sulphur water in the Edwards south of Seguin and Suttle's No. 1 Wurzbach east of Seguin is out of the chalk at 1,945 feet and drilling. Everything else is quiet. Caldwell and Bastrop Counties are nearly equally as quiet. Near Lockhart in Bastrop L. H. Wentz is core drilling and has completed one hole and moving to another. Bastrop tests are all standing.

In Travis County Sun Oil Co.'s No. 1 Nagle found serpentine but not enough oil and moved over and is now on No. 2 with more serpentine and some oil.

In Gonzales County in the territory described as Balcones fault North & South Development Co. is abandoning its No. 1 Wells at 4,888 feet with top of the Edwards at 4,843 feet with no unusual showings but is moving 1,250 feet southwest and will drill the No. 2 Wells. Other tests in Gonzales are not doing much.

Balcones West of San Antonio

West of San Antonio operations are limited to Medina, Frio and Maverick and Uvalde. Wray's No. 1 Burns, the only test in Frio is making hole at around 3,500 feet. In southern Medina North & South tried to whipstock past drill stem with total depth in No. 1 Little at 4,242 feet and failed. The rig is being skidded to drill to around 2,000 feet to test a shallow showing found in No. 1 but the understanding is it will stop at the shallow showing.

National Oil Co. topped the chalk at 1,907 feet in its No. 1 Howard and its next probability will be the Edwards lime.

North of Balcones Fault

North of the Balcones fault and in the Edwards plateau, Dixon Oil Co. in Kendall & Perkins in Kendall County, are resuming, and in Blanco County, Lewis, a little north of Blanco City, has spudded in on No. 1 Glasscock.

In this territory north of the Balcones fault, where up to about a year ago they scarcely knew what an oil man was, there is now about as much activity as there is south of the fault.

South of San Antonio

South of San Antonio down to the coast several tests have been attracting attention. Gibson's No. 1 Von Roeder in DeWitt has abandoned drilling at 4,030 feet which is 30 feet deeper than the contract calls for.

In Live Oak County, Houston Oil Co.'s two mile-deep tests reported last week to be abandoned are to be deepened instead. No. 1-A Boothe was down 5,378 feet and No. 22 Cartwright 5,438 feet. Each had considerable of a showing there but failed to make wells.

Darst Creek Gauge

Darst Creek gauge taken November 29 shows total gross fluid 238,733 bbls., net oil 165,804 bbls., water 72,929 bbls.

Pipe line runs for November from fields in the San Antonio territory and northeast along the Balcones are as follows:

Field—	Total bbls.	Dly. av. bbls.
Luling	298,680	9,956
Lytton Springs	24,510	817
Dale	10,890	363
Yoast	8,850	295
Bruner	445,500	14,850
Darst Creek	1,081,890	36,063
Somerset	39,328	1,311
Dobrowolski & Southton	8,444	281

New Rules in Pettus

The Railroad Commission at Austin has issued an order governing cementing of wells in the Pettus area in northern Bee County as follows:

An order adopting rules to govern the casing and cementing of wells in the oil and gas fields in northern Bee County including Holzmark, Normana and Pettus area and providing for the testing of casings and fittings to be used in those areas has been issued by the Railroad Commission at Austin and is as follows:

Rule 1.—The following shall govern all wells in the Holzmark Field:

(a) Surface casing must be set at a point not less than 450 feet below sea level, same to be cemented with 400 sacks of cement, with sufficient cement to fill to the surface the annular space between the casing and the wall of the hole.

The following shall govern all wells in the Pettus and Normana and other related pools in the same area:

(b) Not less than 400 feet of surface casing must be set in all wells drilled and said casing to be cemented with sufficient cement to fill to the surface the annular space between the casing and the wall of the hole.

Rule 2.—When casing is set on top of any producing oil or gas sand same shall be cemented with not less than 300 sacks of cement, and when any producing oil or gas sand is passed through and casing set on top of the next producing horizon sufficient cement shall be used to come 300 feet above the producing horizon so passed through. The Nichols or Normana sand is recognized as a producing horizon in this area. This rule applies only when surface casing and one other string of casing are set.

Rule 3.—When a third string of casing is set, sufficient cement must be placed behind it to reach 100 feet above the shoe of the second string and likewise any additional strings of casing shall be set with sufficient cement to reach 100 feet above the shoe of the previous string.

Rule 4.—In cementing any string of casing the pump and plug method must be used or any equally effective method

as may be approved by the Railroad Commission.

Rule 5.—All casing, whether new or second-hand, shall be tested by the Rail-hydraulic method at least 300 pounds above the normal rock pressure to be encountered in the horizon being tested, such test to be made at location before being run and cemented. Any pipe that will not withstand this test shall not be used.

Rule 6.—Aboveground connections to be used on all wells shall have a safety factor of at least two, and shall be tested by hydraulic pressure to at least twice the normal pressure to which they would be subjected. Any fittings or connections not withstanding this test shall not be used.

CANADIAN FIELDS

(Continued from Page 53)

the limestone when the light crude peters out.

Mayland Oil Co.'s No. 3, Section 17-19-2w5, shot at 6,177 feet, is cleaning out and testing production. Mayland's No. 4 is drilling at 1,396 feet, and No. 6 is drilling at 858 feet. Lowery Petroleums' No. 2, NW, same section, is drilling at 4,392 feet.

Royalite Oil Co.'s No. 24, LSD 3, Section 29-19-2w5, is drilling in the lime at 5,321 feet. Southern Lowery's No. 1, LSD 3, Section 9-19-2w5, is rigging up rotary to resume at 4,170 feet. Southwest Petroleums' No. 2, Section 8-19-2w5, is drilling at 1,370 feet.

In Central Turner Valley, Royalite Oil Co.'s No. 25, NW, Section 31-19-2w5, is drilling at 4,113 feet. This is the only test of the Imperial string now drilling in the central area, though Royalite's No. 20, LSD 7, Section 12-20-3w5, is cleaning out and testing production after a shot in the lime at 5,180 feet, and some of the older producers are cleaning out.

South Turner Valley

In the South Turner Valley area, Wellington Oil & Gas Co.'s No. 1, LSD 1, Section 20-19-2w5, has cleaned out and deepened to 4,950 feet after recovering lost tools, and is once more on the separator and making around 150 bbls. Wellington's No. 2 was located some months ago in the same LSD and will probably start drilling this month. In LSD 11, same section, Calmont Oils' No. 4 has been shot in the lime at 5,084 feet, but production tests have not yet been completed.

In Section 16-19-2w5, East Crest Oil Co.'s No. 3, LSD 4, has resumed drilling after cementing 18⅝-inch casing at 202 feet. East Crest's No. 2-A, same LSD, which was cleaned out and deepened early in November, shows measured wet gas flow of 26,000,000 feet with average recovery of 456 bbls. It made 10,501 bbls. in November, No. 1 making 1,396 bbls.

In Section 4-19-2w5, Mercury Oils' No. 1, LSD 13, is making new hole in the lime after cementing at 5,372 feet. Mercury's No. 5, same section, is on top of the Home sands at 4,754 feet, and No. 7 is redrilling at 1,320 feet. Miracle Oils' No. 1, LSD 11, same section, is making around 300 bbls. Miracle's No. 2, LSD 16, Section 5-19-2w5, is rigged up but may not spud in for a couple of weeks.

Hylo Oils' No. 1, LSD 12, Section 4-19-2w5, a short distance east of Miracle's No. 1 and a mile south of East Crest's No. 2-A, resumed drilling recently after a prolonged shut down at around 1,790 feet. The 16-inch was set at this depth and the test is reported drilling at 1,906 feet. Commonwealth Petroleums' No. 1, LSD 7, Section 9-19-2w5, which recently resumed is making new hole below 4,420 feet. William Livingston's No. 1, LSD 5, Section 34-18-2w5, is unofficially reported drilling.

Central Turner Valley

In the Central Turner Valley, McLeod Oil Co.'s No. 5, LSD 15, Section 1-20-3w5, got the lime at 4,950 feet and is reported drilling at 5,040 feet depth. Okalta Oils' No. 2, LSD 8, same section, is reported resuming in the lime after a small fishing job at 5,067 feet. At this depth the test has a measured flow of 12,500,000 feet a day.

In Section 12-20-3w5, New McDougall-Segur Oil Co.'s No. 3, LSD 14, is drilling 75 feet in the lime at 5,495 feet depth with increased wet gas flow. No. 2 is testing production 600 feet in the lime at 5,658 feet. British Dominion Oil Development Corp.'s No. 3, LSD 6, is reported drilling at 4,050 feet. No. 2 delivered 2,140 bbls. in November. Widney Petroleums' No. 1, LSD 11, is drilling at 4,963 feet.

Structure Oil & Gas' No. 1, LSD 7, Section 31-19-2w5, is drilling out cement in the lime at 4,780 feet.

Dome Oils' No. 2, LSD 16, Section 36-19-3w5, is drilling in the McDougall Segur sands below 3,920 feet.

In Section 13-20-3w5, Spooner Oils' No. 4, LSD 14, is drilling 235 feet in the lime at 5,315 feet, and making considerable wet gas, around 6,000,000 feet. Richfield Petroleums' No. 2, LSD 12-13, same section, is drilling in the McDougall-Segur sands below 3,050 feet.

In the north end of Turner Valley, United Oils' No. 4, Section 24-20-3w5, is redrilling at 4,600 feet preparatory to deepening to the lime.

Operations in the Foothills

On the Waite Valley structure, Calgary Development's No. 1, LSD 10, Section 21-19-3w5, which is being drilled by Imperial Oil, Ltd., has been held up by a fishing job at 3,170 feet.

On the Moose Mountain structure, Elbow Oils' No. 1, LSD 11, Section 35-22-5w5, has resumed drilling after a prolonged shut down at 3,045 feet, and is reported making new hole after cementing against caving. The well was located some years ago by E. H. Cunningham Craig southwest of the Moose Mountain structure proper, and is either on a southwesterly extension of that structure or a separate fold. Test is being financed by British capital; the officers of the company include: President, J. C. Morris, London, England; secretary-treasurer, Mrs. G. K. Tilley; vice president and managing director, L. A. Snyder. On the main Moose Mountain structure, Signal Hill Oil Co.'s No. 2, LSD 9, Section 34-23-5w5, is drilling at 4,160 feet after cementing against caving.

To the southwest, Herron Petroleums' No. 1, LSD 3, Section 13-22-6w5, on the Herron structure is drilling in lime at 3,350 feet after casing off sulphur gas. A sweeter gas has been encountered. The test is 530 feet in the Madison lime. On the Moose Dome, Moose Oils' No. 1, LSD 16, Section 29-22-6w5, is sidetracking.

In the Pincher Creek area, Weymarn Petroleums' No. 2, LSD 5, Section 7-6-1w5, is drilling at 2,825 feet. On the Aldersyde structure, Ranchmen's Gas & Oil Co.'s No. 1, LSD 16, Section 13-20-29w4, is drilling at 4,465 feet.

Red Coulee Field

On the Montana end of the international Red Coulee structure, Monalta Oil Co.'s No. 2 Buckley, Section 1-37-4w, on deepening into the sand below 2,530 feet got a strong flow of gas which threw traces of oil over the top of the derrick, followed by water. Efforts are being made to shut off the water and bring the well into production. Location is midway between Nos. 1 and 3, both of which got oil production around this depth.

On the Alberta end of the structure, Dixie Oils' No. 1, LSD 15, Section 7-1-16w4, is unofficially reported running casing before drilling into the sand. Dalco Oil & Gas Co.'s No. 2, LSD 7, Section 19-2-17w4, is reported drilling below 2,190 feet.

Border Fields

In the Lethbridge district, southern Alberta, Texas-Imperial's No. 1, LSD 14, Section 22-8-22w4, is drilling below 322 feet. On the Spring Coulee structure, Alberta Pacific Consolidated's No. 1, Section 15-4-23w4, is drilling at 4,646 feet.

In the Milk River area, Anglo-Western Oils' No. 1, LSD 1, Section 12-4-17w4, is shut down at 187 feet. Commonwealth Petroleums' No. 1, LSD 9, Section 9-3-15w4, is drilling at 4,615 feet in a hard formation of the Devonian limestone.

In the Keho Lake area, Hudson's Bay Oil & Gas Co.'s No. 1 Keho, LSD 2, Section 17-11-22w4, has resumed drilling after cementing back to 2,000 feet.

East Central Alberta

In the Ribstone Field, east central Alberta, Algonquin Petroleums' No. 1, LSD 1, Section 20-45-1w4, has spudded in but is temporarily shut down while a water well is being drilled.

Atlantic Keystone Petroleums, Ltd., which recently transferred its offices from New York to Vancouver, British Columbia, will establish an office for its Alberta operations at Edmonton. The immediate program includes core drilling operations next year on extensive holdings in the Viking, Wainwright and Ribstone Fields. Col. Frank Wilbur Smith, president, and Frank L. Buckley, managing director, are now in Alberta arranging details of the proposed development work.

Arm Lake Oil & Gas Co. has been incorporated under Alberta charter with head office at Edmonton and will develop acreage in the Arm Lake district between the Wainwright and Ribstone Fields.

In the Castor district, Hudson's Bay Oil & Gas Co.'s No. 1 Paintearth, LSD 5, Section 27-39-15w4, is drilling at 2,739 feet.

British Columbia Tests

In the Province of British Columbia, Cariboo Oil Co.'s No. 1 near Australian, British Columbia, is reported to have encountered a show of oil around 550 feet and is drilling close to 600 feet. In the Tobacco Plains district, Pacific Petrol Products' No. 1, 1-2-3 OS Dorr, has spudded in and is drilling below 80 feet. In Steveston district, Fraser Valley, International Pipe Line Co.'s No. 2 is reported making new hole below 650 feet after overcoming a fishing job due to quicksands snapping the drill rods. The quicksands have been cased off, and a gas horizon is looked for around 750 feet. A gas flow reported 500,000 feet a day was met around 600 feet.

Manitoba Drilling

In the Manitou district, southern Manitoba, Commonwealth Petroleums' No. 1 test is reported running casing to overcome caving at 600 feet.

Ontario Drilling

In the Dawn Field, Lambton County, Ontario, Union Natural Gas Co.'s No. 52, Barnes farm, west half Lot 23, Concession 1, finished a dry hole at 1,822 feet. Union's No. 53, southwest corner Lot 18, Concession 1, is drilling around 1,200 feet.

In the D'Clute Field, Raleigh Township, Kent County, American Engineering Co.'s No. 3, John Dawson farm, Lot 147, South Talbot Road, is cleaning up and getting in shape for production. American Engineering Co. is reported making location for its No. 4 test. Further west, in the Romney end of the old Tilbury Field, Southern Ontario Gas Co.'s test on the George H. Dawson farm, Lot 187, South Talbot Road, Romney Township, struck water at 1,379 feet. It was plugged with lead to 1,329 feet and shot with dynamite, an open flow of 30,000 to 40,000 feet at this depth being increased to around 75,000 feet by the shot.

In the old Tilbury oil field near Fletcher, Argo Gas & Oil Co.'s No. 1, on the Mancell farm, encountered salt water in the Tilbury sand after getting a small show of oil. It is being pulled and plugged.

In Mosa Township, Middlesex County, Southern Ontario Gas Co.'s No. 5, west half Lot 15, Concession 3, is reported drilling below 1,540 feet. A pocket of gas was met at 1,514 feet, reported initial open flow of 500,000 feet a day but which speedily blew down to 5,000 feet. Southern Ontario's No. 6, northeast quarter of Lot 16, Concession 3, is reported drilling.

In Brant County, Petrol Oil & Gas Co.'s No. 33, on the Six Nations Indian Reserve, got production in the Medina formation at shallow depth, with estimated open flow of 33,000 feet a day. No. 32 a few days earlier came in with 100,000 feet open flow, a rather large well for this field. Petrol Oil & Gas Co.'s wildcat test, 1½ miles from the main group of producers got 73,000 feet in the Clinton sand, indicating new possibilities in this area, previous production in the main field having been all in the shallower formation. The Petrol company is planning to further test the possibilities of this new area. Three outfits are now at work in the field.

CALIFORNIA FIELDS

(Continued from Page 56)

and a 9-inch liner carrying 1,010 feet of perforated. W. P. Mason's No. 2 Kelly Prentiss, completed at 4,560 feet and finished with a 5-inch liner including 1,090 feet of perforated, registered an initial daily production of 470 bbls. per day. The Phileo Oil Co.'s No. 1 Venice is listed for completion as a 730-bbl. well from 4,472 feet. The Pan Gulf Petroleum Co.'s No. 3 Venice, bottomed at 3,977 feet with an 8⅝-inch water string landed at 3,695 feet, tested wet on a preliminary test and the flow of salt water will necessitate corrective work. The Union Oil Co.'s No. 4 Townsite, finished at 4,350 feet after being plugged back from 4,595 feet, is making 485 bbls. per day on the beam.

By a unanimous vote the Los Angeles city council adopted an ordinance levying a tax of one-half a cent per barrel on all oil produced in the city of Los Angeles. This ordinance was enacted for the purpose of increasing revenue and was directed primarily at Playa Del Rey. Immediately following adoption of the ordinance, the city dads indicated that they might entertain a vote to reconsider the measure. Revenue accruing from this tax levy, which the council estimated would approximate $82,000 per annum, will be used to provide fire protection and to insure adequate inspection of oil field operation. Francis J. Heney, prominent California attorney and a property owner in the Playa Del Rey Field, is gathering sufficient data for presentation to the city council in order to have the new ordinance repealed if possible. By a strange coincidence, the International Petroleum Co.'s producing well at Forty-second and Grand Canal took fire within a few hours after enactment of the new tax levy. This well, which may cause the city council to sustain its action, is thought to have become ignited due to defective wiring on the derrick. In addition to destroying the rig and equipment, approximately 750 bbls. of crude stored in a steel tank were destroyed. An accumulation of gas in the top of the tank caused a violent explosion which tore the tank from its base and deposited it 25 feet away.

Long Beach

There were several good wells finished in the Long Beach Field of Los Angeles Basin during the past week, the largest of which was the Venango Oil Corp.'s No. 1 Richlan. This new well, finished at 7,688 feet with a 6⅝-inch water string landed at 7,296 feet, was brought in under a natural flow doing 2,320 bbls. of 29.1 gravity oil per day. The Shell Oil Co. headed the completion list with two big wells to its credit. These were No. 6 Babb Tucker, which registered an initial of 1,960 bbls. per day from 6,071 feet, and No. 8 Stakemiller, which was brought in flowing 1,350 bbls. per day upon completion at 5,363 feet, the hole having been finished with a 5¾-inch oil string carrying 560 feet of perforated. The Shell has not done much drilling in the Long Beach Field during the past year but the completion of several large wells on leases adjacent to its properties has forced it to undertake a limited amount of work.

The Zenith Oil Co.'s No. 3 Signal, bottomed at 7,754 feet and finished with a 7-inch water string landed at 7,382 feet, came in barefoot flowing 1,040 bbls. of 27.1 gravity oil per day during the early part of the week. This new well is flowing through a 58/64-inch bean under a pressure of 790 pounds. The Two & One Oil Co.'s No. 2 Sunset Pacific, drilled by Walter Hughes, brought the Los Cerritos section of the Long Beach Field into the limelight when it came in flowing 950 bbls. per day from 7,501 feet. Its production period was short lived, however, as the well sanded up 18 hours after completion. The Plymouth Oil Co.'s No. 12 Signal, finished at 7,356 feet and completed with a 5¾-inch combination string carrying 481 feet of perforated, registered an initial daily production of

800 bbls. per day. Otis Hoyt's No. 13 Signal, another new well finished during the past week, was good for 270 bbls. per day from 5,083 feet, the hole having been plugged back from 5,158 feet. The Cash Oil Co. finished its first producing well in the Long Beach Field a few days ago when No. 1 Signal was brought in flowing 455 bbls. per day from 7,490 feet, the hole having been completed with an 8⅝-inch water string cemented at 6,390 feet and a 6⅝-inch liner including 1,099 feet of perforated. The Hancock Oil Co. cleaned out its No. 21 Signal and this well was returned to production doing 389 bbls. per day from 5,506 feet. In addition to the several relatively large wells finished in the Long Beach Field during the past week, there were several small pumpers completed. Included in this group was Chessman & Riner's No. 1 Stockwell, brought in pumping 90 bbls. per day from 6,736 feet, the hole having been plugged back from 6,772 feet. The Italo Petroleum Corp.'s No. 2 Macrate was another small well finished this week as this project was brought in on the beam pumping 50 bbls. per day upon recompletion at 5,920 feet. The Star Petroleum recompleted No. 2 Colby a few days ago and this well, located in the Los Cerritos section of the field, was returned to production pumping 190 bbls. per day. The Texas Company also chalked up a small recompletion during the week when No. 3 Perrin was returned to production pumping 285 bbls. per day. This well, also located in the Los Cerritos section of the field, is producing from 5,176 feet.

Rosecrans

The Union Oil Co. successfully finished No. 15 Rosecrans, a new well in the Rosecrans Field of Los Angeles Basin, during the latter part of the week, and this project is at the present time flowing 710 bbls. of 38.6 gravity oil per day. It was drilled to 5,859 feet and finished with a 4½-inch liner carrying 115 feet of perforated, the water shut-off being effected with a string of 8⅝-inch landed and cemented at 5,745 feet. The St. Helens Petroleum recompleted its No. 1 Walsh after redrilling and deepening it to 4,811 feet and the additional 60 feet of hole added changed a 25-bbl. well into one producing 198 bbls. of clean 43.1 gravity oil and 200,000 feet of natural gas per day. In the Montebello Field, the St. Helens Petroleum is rigging up No. 7 Monterey for rejuvenation and will shortly abandon No. 1 Nutt and quitclaim the lease. The Nutt property has ceased to be commercially profitable due to edge water encroachment. In the Inglewood Field of Los Angeles Basin, the Standard has staked location for two new wells. These projects are No. 26 on Vickers Lease No. 1 and No. 65 on Los Angeles Investment Lease No. 1. This work is of a routine nature and is being undertaken in order to comply with lease requirements. The Continental Oil Co. is rotating ahead in No. 24 Selover in the Seal Beach Field at 7,539 feet and since this well is in the oil sand at present it should be listed for early completion. The company has also located No. 25 Selover but this well will not be spudded in until No. 24 is on production. The Shell Oil Co.'s No. 7 Manuel, a deep test in the Dominguez Field of Los Angeles Basin, is rotating ahead in a hard sandy shale at 8,075 feet. The Associated's deep test in this area, No. 12 DeFrancis, is making hole at 3,504 feet. In the West Coyote Field, the Standard has just landed a string of 9-inch casing in No. 105 Murphy at 5,176 feet preparatory to an early test.

Kettleman Hills

With the State's suit to enjoin unreasonable waste of natural gas at Kettleman Hills scheduled to get under way at Hanford next Monday, December 15, operators are watching developments in the Kettleman Hills Field with considerable interest. The Superior Oil Co., after establishing an actual production of 15,060 bbls. per day, has pinched No. 1 Huffman back to 9,500 bbls. as a preliminary move to establish a settled production and at the same time reduce the well's production of natural gas. The Richfield Oil Co. has sold its interest in the Signal Lease in Section 36-21-17 to the North American Oil Consolidated Co. and the latter has already taken possession of the lease in question. The Richfield Oil Co. made 2,000 feet of hole in No. 1 Signal, and, while no announcement has been made of the amount involved in the transaction, it is reliably reported that the Richfield disposed of its interest for $150,000. As a result of this deal, the North American becomes a copartner with the Signal Oil & Gas Co. on a 50-50 basis involving a lease of 80 acres. A total of 25 wells participated in the distribution of $112,201, which represents 25 per cent of the gross value of oil produced by four wells in the North Dome at Kettleman Hills during the month of October. Each well received approximately $4,573, as compared with a distribution of $4,788 per well in September. The Associated, Bolsa Chica, Pacific Western and Shell participated to the extent of 4 per cent. The General Petroleum and Getty Oil Co., each having two wells suspended above the oil sand in conformity with the Kettleman agreement, received 8 per cent of the distribution. The Milham Exploration Co. received $13,720, or approximately 12 per cent, while the Standard with 13 suspended wells received $57,320.

The Lost Hills and Belridge Fields of Kern County are expected to be the center of interest during the next week or 10 days due to drilling operations of the Richfield Oil Co. and Universal Consolidated Oil Co., each of which has already picked up the Temblor production which has proven so productive at Kettleman Hills. The Richfield's test in the Belridge Field will be drilled ahead in order to take in more productive formation than was secured in the Belridge Oil Co.'s No. 15 and consequently it may be another 10 days before this well will be in a position to make a bid for production. Cores from this well and the heavy gas pressure encountered indicate the probability that substantial production will be secured. The Universal Consolidated's test in the Lost Hills Field, which was recently cemented at 4,897 feet, looks equally as promising and will consequently be watched very closely. The Shell's No. 1 Williams, located in the Semitropic Ridge in Section 17-27-23, is the deepest wildcat under way in the State at the present time, the depth being recorded a few days ago as 8,475 feet. There were no developments of special interest in the Weed Patch Field of Kern County during the week but developments during the next 15 days are expected to throw further light on the potentiality of this field.

LA.-ARK. FIELDS

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making 500 bbls. at 3,665 feet on gas lift, is rigging up to deepen a couple of hundred feet.

There was not much news from DeSoto except for J. W. Clark's No. 1 Tidwell, NW NW, Section 22-13-14, half way between Holly Pool and Grand Cane's prospective production, which has made several abortive shows. This time the thing blew out again at 3,096 feet with an estimated 5,000,000 feet of gas and a spray of oil and went dead after it had stood with 1,300 feet of oil in the hole when it started swabbing. The blowout happened after it swabbed to top of liner and set over night. After the blowout it stood 12 to 24 hours and rose 300 feet in oil. Two days later it had 500 feet of fluid, 80 per cent water; swabbed again and found a bridge about 80 feet off bottom; cleaned out the bridge and it blew in. It seems on this showing to be another DeSoto wildcat show—only somewhat better.

Odell & Lawton's No. 1 Harris, NW SE, Section 11-13-14, a mile or so southwest of Holly production, completed several years ago as a duster at 3,140 feet by Danziger and others, and deepened 10 feet where it made 20,000,000 feet of gas with a heavy spray of salt water and was finally drowned out, cemented back to 2,880 feet, shutting off the water, and tested 15,000,000 feet of gas at 2,886-96 feet.

Shaw Well Goes Dead

T. G. Shaw's No. 1 Wilkerson, SE SW, Section 4-2-10, a semiwildcat half a mile east of Bull Bayou production in Red River Parish, worked with for several weeks, made 30 bbls. through 2-inch tubing for the first 12 hours and then went dead. Richland Parish's wildest wildcat in recent months, Island Gas Co.'s No. 1 Noe, SE NE, Section 3-16-5, 3 miles west and a little north of the farthest northeast extension of Richland, is finally an abandoned hole at 2,690 feet. It had the Monroe gas rock at 2,365 feet—where some wells have produced but most have been dry in Monroe—and was dry on a series of tests from there on and has been shut down since early in November at the completed depth. United Carbon Co.'s No. 1 J. A. Hemler, SE SE, Section 5-15-6, in the southeast corner of Richland's proven territory, was dry at 2,450 feet and abandoned with producers on all sides.

In Union Parish, Bahan & Bahan completed No. 1 Barr, SW NW, Section 16-20-4, making 8,000,000 feet of gas at 632 pounds from 2,158 feet, and that was the sum total of activities in the Monroe Field, where most other operations have passed from the picture as completions or are shut down indefinitely. Morehouse, for instance, has one location; Ouachita has six operations in various stages of inactivity and Union is out of the list entirely without even a location.

Monroe Field is idle for the first time in the 13 years of its commercial importance—but it is still producing up to 1,080,989,285 feet permitted pull. It is not, but is capable of, producing that much, which is about a third of its permitted pull which in turn is far less than its total open flow capacity.

The only news from Webster is from an ill-defined block of 3,500 acres assembled by J. F. Hawkins in the northeast corner of the parish directly under the state line and directly west of Junction City. No information concerning it was obtainable except that he is supposed to have gathered it to turn for a well. The same terms apply more or less generally to a larger block just east of Minden in the central part of the parish being built by other unidentified parties.

Both Lion Wells Good

Lion Oil Refining Co.'s two wells on the Sullivan Lease in Section 12-17-14, Champagnolle district of Union County, Arkansas, were good wells though not so good as their first shows indicated they might be. No. 1, SE cor. SE NW of the section, was finished making 1,200 bbls. fluid, 25 per cent salt water, and 2,500,000 feet of gas from 3,003 feet in 25 feet of sand, and No. 2, NE NW, same section, made 250 bbls. clean oil with 15,000,000 feet of gas from 15 feet of sand at the same depth. Both are in semivacant territory between the southeast corner of the old Champagnolle district and the southwest corner of the narrow strip to the east opened a year or so after Champagnolle went to settled production and ceased to attract much attention, and are in the second sand. Ohio Oil Co.'s No. 10 Crain, SE SW, Section 1-17-14, within half a mile of these two, is waiting on standard rig, full of fluid, 95 per cent salt water, from 25 feet of broken sand at 3,010 feet. The relationship shows up Champagnolle all over again just as Zwolle's wells are showing up what may be expected from correlations in that area.

Marine Oil Co.'s No. 5-A Thompson, SW NE, Section 10-18-13, Urbana district, is standing 2,000 feet in oil from 7 feet of sand at 3,535 feet, and probably will make a good pumper in a territory once condemned because its early gas wells of 1926-27 went quickly to salt water. Meantime, Marine has made location for No. 3-B Thompson, SE NE, Section 10-18-13. Hickman and others' No. 1 Hogg, SE SE, Section 35-16-17, 7 or 8 miles northwest of Lisbon production and the same distance southwest of Smackover, topped the red beds at 2,812 feet, tested and got salt water and were drilling at 2,837 feet. H. L. Hunt's No. 6 Swilly, SE SE, Section 21-16-16, Smackover, has 1,000 feet of fluid, 40 per cent water, in the hole and is waiting on standard rig at 2,711 feet. No. 5, in Section 28-16-16, has been waiting on standard rig with 2,000 feet of fluid from 2,689 feet since early in November.

Shale Showing Oil

Graves Brothers' No. 1 Walker, in Section 9-14-18, several miles north of Mount Holly production in Ouachita County, cored sandy shale showing oil at 2,013-20 feet and were arranging to test. Stephens district of Ouachita has a new well under way, Wesson & Bonner's No. 1 Wesson, SW NW, Section 22-15-19, on the east side of the pool, which began drilling two weeks ago, set surface pipe at 108 feet, second string at 2,083 feet and will be drilling in.

Crosbie and others' deep test, No. 1 Murphy, SW NW, Section 13-16-16, southwest of Smackover production in Union County, failing to make a well in a reputed new sand at 2,740 feet, is being drilled on according to original plans for a 4,500-5,000-foot (or deeper) test, and cored red beds at 3,275 feet. It pumped a little oil at 2,740 feet with a lot of water, cleaned out with cable tools, and went back to rotary to carry out the deep test program. Turner, trustee's No. 1 Brown, Section 23-15-18, Ouachita County, on the northeast of Mount Holly, tested salt water at 2,178 feet with no show in second hole and will go on to 2,800 feet or deeper.

Wells in the vicinity of the discovery producer in Miller County, Arkansas, have shown no material progress in the last two or three weeks—that is, nothing for anyone to get excited over. But this week there is a new location by Gusher Bend Oil Co., composed of Texarkana interests, and said to have no relation to the old Gusher Bend Oil Co. of early Lenzburg-Crichton days of 1914 or thereabouts. Stakes are in the ground for No. 1 Adams, NE NW, Section 26-14-26, 7 miles north of the Lenz discovery in the general vicinity of Buzzard Bluff where several other wildcats that made more or less shows have been drilled in the last several years.

Texas Wildcat Abandoned

The Texas Company abandoned its wildcat north of Linden, Cass County, No. 1 Citizens State Bank, in the Joseph Watkins Survey, at 3,905 feet as a dry hole, and John C. Rogers' No. 1 Lanier, in the K. E. Welborn Survey, 8 miles south, which checked on it, claims a show of gas at 2,270 feet. Olds & Smith, who recently completed a dry hole in the Gibsland district of Bienville Parish, and had a block in Cass County west of Bloomburg, just across the Louisiana line, have begun drilling No. 1 Atheny in the J. C. Byers Survey, set 80 feet of 8-inch and shut down. L. C. Willoughby and associates have blocked 6,000 acres, including and surrounding the Willoughby tract in the Sam Hughes Survey 7 miles northeast of Linden, and the Double II Oil Co. of Illinois is reported to have agreed to take over the block for a well to be drilled to 4,000 feet. Another block of 7,500 acres centering on the Albert Latimer Survey adjoining the Willoughby block has been assembled by Davis & Pigg of Vernon, Tex., for a well to be drilled to the Woodbine.

In Harrison County, Hallsville residents have assembled 6,000 acres based on the D. H. P. Bodine Survey, 4 miles north of Hallsville, which they are trying to turn for a well. Sloan Prospecting Co. of Houston has gathered two blocks in Shelby County, both predicated on drilling obligations, one of 11,000 acres centering on the Stephena Castelberry Survey a mile south of Shelbyville, and another of 10,000 acres centering on the John Green Survey 5 miles southeast of Center. Nemours Corp. completed No. 6 Brumble, in the E. F. Mitcheson Survey of Panola County, making 1,000,000 feet of gas at 2,357 feet.

ROCKY MOUNTAIN AREA

(Continued from Page 53)

feet. San Juan Leaseholds Co.'s No. 3 Bowman, NW NE, Section 30-30-15, Meadows district, is drilling at 2,550 feet after cementing off cavy ground that hindered operations for several months. Continental Oil Co.'s No. 24, SW cor. NW, Section 1-29-19, Rattlesnake Dome, is bottomed at 3,852 feet and fishing for rotary bit which was twisted off.

COLORADO

The favorable position of Denver as a central point from which to direct operations in the Rocky Mountain area was again emphasized when several departments of the Midwest Refining Co. were moved from Casper to this city. G. H. Jacques, vice president in charge of the field division, now has his headquarters in the First National Bank Building where the executive and geological departments are located. Others making the change include H. W. Ladd, equipment division; A. G. Fidel, purchasing agent; C. F. Young, assistant purchasing agent; J. J. Zorichak, petroleum engineering; B. F. Fehlman, R. K. Nichols, Earl Fry and various secretaries and stenographers. J. B. Barnes, Jr., who recently was appointed chief counsel for the company, now has his headquarters at Denver.

Weld County

The Platte Valley Petroleum Co.'s No. 1 Patterson, NE SE NW, Section 24-6n-61, on the Greasewood Dome, in Weld County, which came in at 6,667 feet on October 10 flowing by heads, has been drilled deeper. The well when it first came in made 5 or 6 heads each day, the heads lasting from 15 to 20 minutes and total flows being approximately 150 bbls. a day. It continued at about that rate until Saturday night when it was drilled 1 foot deeper. The well responded with an increase, being estimated at 400 to 500 bbls., though no gauge was taken. Sunday it was deepened 18 inches, or a total of 30 inches and there was another increase, total being estimated at 600 bbls. However, when a 24-hour gauge was taken Monday, it made less than these estimates, putting 360 bbls. into the tank. The tools were left in the hole, which has been reduced to 4 inches, and these retarded the flow somewhat. When drilling again was suspended, the hole was still in shale and had not entered a true sand. Present plans are to resume drilling the last of this week and to feel slowly for the sand which is believed to lie within the next 10 to 12 feet. Upon drilling deeper the well flowed steadily instead of by heads. There was no change in the quality of the oil which tested 42 degrees gravity. It is dark green in color and has a paraffin base. The performance of the well is highly gratifying to the companies which have been engaged in a big leasing campaign throughout eastern Colorado since the discovery was made on October 10 and even if this should prove to be an edge well, it will in no way minimize the importance of the discovery.

Morgan County

Reports from the Indian Territory Illuminating Oil Co.'s No. 1 State, C NE NE, Section 16-1n-57, Fort Morgan anticline, are again uncertain, but the best information available is that after running 6⅝-inch at 3,670 feet, drilling was resumed and the hole is now below 3,845 feet. The string was not cemented, and will be carried as deep as possible.

Larimer County

Plans for marketing the gas from the Berthoud Dome in Larimer County were finally determined when the Standard Oil Co. of Colorado contracted the output from its operation to the Public Service Co. of Colorado. The last named concern is local distributor in Denver, Pueblo and other Colorado cities and towns. It is understood a prolonged fight for a gas franchise in Longmont will be settled as a result of this deal and that the Public Service Co. will be given the franchise. The Eastern Colorado Gas Co. was reported several weeks ago to have contracted for the Berthoud gas, but this deal fell through. The Standard Oil Co. of Colorado, following the signing of the contract, is resuming on the Berthoud Dome. Its No. 1 Hertha, NW cor., Section 21-4n-69, which was temporarily completed as a gas well at 2,830 feet, is resuming and is to be carried to its original objective, the Muddy sand, which is expected at around 3,200 feet. The same company also has made location and cellar is completed for its No. 1 Hall, NE cor., Section 20-4-69, an offset on the west to its No. 1 Hertha. Same company's No. 2 State, C NW, Section 16-4n-69, for which location was made recently, will go ahead, and moving in of material will begin in about 10 days. Continental Oil Co.'s No. 3 Scott, SW SE, Section 6-9n-68, Wellington Dome, is standing with 4¾-inch cemented at 4,645 feet. Erbe Oil Co.'s No. 1 Maxwell, SE NE NE, Section 25-8n-70, Bellvue district, has made a water shutoff at 150 feet and is ready to resume drilling. This operation was taken over recently from Donahoe and Babcock and a rotary installed.

Adams County

Nettie M. Slatt's No. 1 Hills, SE cor., Section 27-3s-64, Watkins district, is standing at 2,500 feet with 10¾-inch cemented on bottom. The drillers claim the hole is bottomed in the Niobrara shale and that the Dakota will be reached at 3,200 feet. Geologists familiar with the territory do not see how this can be possible in view of the fact that the McDeb well in Arapahoe County probably will have to go 6,500 feet to reach the Dakota, but the drillers assert formations already cut are 3,000 feet higher than in the McDeb well.

Arapahoe County

McDeb Drilling Co.'s No. 1 Fitzsimmons, NE, Section 7-4s-66, is making hole for the first time in several months, having cleaned up a bad fishing job and swedged out kinked casing. It is drilling at 5,700 feet with a 6-inch bit and the hole is carrying some water on which there are small shows of oil and gas.

Jefferson County

Ruby Hill Oil & Gas Co.'s No. 1 Braden, SE cor., Section 24-4s-69, near Denver, is bottomed at 3,795 feet and drilling up bailer. The 6⅝-inch is 20 feet off bottom.

Las Animas County

A new operation in Las Animas County is reported in the Oklahoma Drilling Co.'s No. 1 Radliff, NW SW NE, Section 28-28s-52, on the Johnny Creek Dome. It spudded in an 18-inch hole with standard tools for a 2,600-foot test to the Pennsylvania and shut down at 100 feet until roads are opened up to move in fuel and supplies. The location is close to where the Southeastern Colorado Oil Co. drilled a well several years ago, but lost the hole at 1,400 feet without making a test.

Baca County

The A. R. Jones Oil & Operating Co.'s No. 1 Boice Cattle, NW NE, Section 22-34-42, is reported drilling at 4,242 feet. A hole full of salt water at 4,012 feet has been cased off.

La Plata County

McGarr Petroleum Corp.'s No. 1 Sanchez, SE cor. NE, Section 27-33-12, Red Mesa district, shot a 52-foot sand topped at 3,204 feet with 150 quarts and oil is reported to have risen several hundred feet. The operation then was shut in for storage. The oil is reported to be green in color, of paraffin base and about 35 gravity. It has not been tested, but may make a small producer.

Montezuma County

Mesa Verde Ranch Co.'s No. 3 Haller, NE SE SE, Section 33-36-14, Mount Lookout structure, is waiting for 6⅝-inch casing at 902 feet. This well went through a 52-foot sand that was saturated and is headed for the Sundance.

Moffat County

The Texas Production Co.'s No. 4 Wick, NW NW, Section 10-4n-91, Moffat Dome, is fishing for tools at a total depth of 4,646 feet. Mountain Fuel Supply Co.'s No. 2 State, Tract 37-12n-100, Hiawatha district, is drilling at 900 feet.

Routt County

The Texas Production Co.'s No. 4 Carstarphen, NW NW, Section 5-6n-86, Tow Creek, is drilling at 3,380 feet. It showed for a producer at 3,278 feet, but the oil did not hold up.

Fremont County

Vogel-Raddatz Corp.'s No. 24 Travis, SE NW NE, Section 28-20-69, South Florence, is resuming at 825 feet after being idle for several months. This company has a group of nice producers in that area.

WYOMING

Park County

Oil has made its appearance in the Resolute Oil Co.'s No. 1, NE SW NE, Section 17-57-101, Badger Basin structure, in Park County, Wyoming, which last week was reported showing some gas in the top of the Frontier formation at 8,255 feet, in the deepest hole ever drilled in the Rocky Mountain area. The quantity of oil in the hole was described by an official as "considerable," and from other sources it is said to be approximately 1,000 feet. It is a light crude which showed a gravity of 45 degrees in the first tests made. There is also some gas. The quantity, if the hole was not blocked by the bit, is estimated at 8,000,000 feet, though much less than that amount is escaping. This is the pioneer deep test on the structure and gives encouraging promises of opening a new light oil field. When the gas was first encountered the drilling string was blown up the hole and became entangled with the cable. The string has been recovered, but the bit is still in the hole. The last string of casing run was set at 4,050 feet and an 8-inch bit used below that horizon. With more than 4,000 feet of open hole, a fishing job is considered rather risky and it has been decided to run a string of 5¾-inch special seamless casing down to the bit and then attempt to sidetrack it. If that cannot be done, the hole probably will be finished at the present depth. The test has not been drilled deep enough into the pay to determine really what may be expected in the way of production from the Frontier sands, but the discovery is similar in many respects to that made on the Dry Creek structure, 20 miles to the north in Montana, by the Ohio Oil Co., which found the oil in a second well that went below the gas in the first well. President Julius Peters is quoted as saying that the conditions and field are favorable for economical and efficient operation in spite of the great depth. The company controls all the acreage, about 20,000 acres altogether, with the Northern Pacific Railroad owning the alternate sections which are under lease. This complete control will make the operation of the field as a unit possible and it is expected that rotary drilling will be practical.

Two completions were reported in Park County. The Continental Oil Co.'s No. 27-Elk-2, NE NE, Section 24-58-100, Elk Basin Field, was completed in the second Frontier at 1,497 feet and pumped 23 bbls. initial. The Texas Production Co.'s No. 2 Sonners, C SW SW, Section 20-51-100, Oregon Basin, was completed at 3,702 feet and made 270 bbls. the first 24 hours from the Embar. This well is an offset on the north and northeast to same company's No. 1 Sonners and the Wyoming Western Oil Co.'s No. 1 Hough Midwest Refining Co.'s No. 31 Rosenberg, SW cor. SE, Section 24-58-98. Frannie Dome, is drilling at 2,947 feet in dark red shale with 8⅝-inch at 2,935 feet.

Natrona County

In Salt Creek, the Wyoming Associated Oil Co.'s No. 29-SD-3, NW NE, Section 26-40-79, is drilling at 2,748 feet in hard slate, and Midwest Oil Co.'s No. 8-SD-3, SE, Section 26-40-79, is standing cemented at 2,984 feet. A new operation is the Wyoming Associated's No. 26-SD-3, NW, Section 26-40-79, which is drilling at 102 feet in hard shale. Cuyler Oil Co.'s No. 1 Ogden, SE, Section 23-36-85, Powder River Dome, is building rig. It is to the west of No. 1 Dye, which recently was completed at 1,301 feet in the Frontier as a 10,000,000-foot gas well. No. 1 was originally intended to go to the Dakota sands, but it was decided to save it as a gas well and drill another to the original objective. Vulcan Petroleum Co.'s No. 1, SE SE, Section 10-39-78, east of Salt Creek, is drilling below 1,450 feet, and Summitt Oil Co.'s No. 1 Trewett, NW NW, Section 21-33-80, North Platte, is drilling below 1,000 feet. Midwest Refining Co.'s No. 11, SE NW NW, Section 32-34-77, Geary Dome, is drilling at 4,172 feet in sticky shale.

Converse County

Ohio Oil Co.'s No. 5 Jones, Section 9-33-76, Big Muddy, is drilling at 3,510 feet. Weisman Big Muddy Oil Co.'s No. 1, SW SE, Section 6-33-76, is bottomed at 3,209 feet and sidetracking at 3,100 feet, and its No. 1 Glenrock Sheep, Section 3-33-76, has cellar completed and is waiting for completion of the well on Section 6.

Niobrara County

Argo Oil Co.'s No. 2 Ford, SW SE, Section 33-36-65, Lance Creek, is preparing to drill plug after cementing the 4¾-inch on top of the gas sand at 3,346 feet.

Carbon County

Midwest Refining Co.'s No. 27 Union Pacific, SE SE, Section 11-20-81, Elk Mountain, is running 13-inch at a total depth of 1,275 feet, and the Producers & Refiners' No. 3, SE NW, Section 2-19-88, Hatfield, is bottomed at 4,410 feet and underreaming 4½-inch at 4,325 feet.

Fremont County

Producers & Refiners Corp.'s No. 2, SE NW, Section 33-34-92, Muskrat Dome, is drilling at 4,933 feet in shale, and its No. 10, NW cor., Section 14-32-95, Sand Draw, is drilling at 3,816 feet in shale and bentonite. This well is said to have cut around 1,500 feet of the Frontier formation, which proved to be much thicker

(Continued on Page 140)

GULF COAST PORT SHIPMENTS SHOW DECREASE IN OCTOBER

HOUSTON, Tex., Dec. 15.—Shipments of oil from Gulf Coast ports for the month of October totaled only 15,503,931.07 bbls., according to figures just compiled. This represented a decrease of 2,428,320.14 bbls. from liftings of September. The loss was in coastwise movements as export sailings were slightly up. Figures by companies and ports for refined products and crude were:

REFINED

Company and port—	Coastwise— September	Coastwise— October	Export— September	Export— October
Standard Oil Co. (La.), Baton Rouge	548,171.00	532,898.00	785,844.00	533,588.00
The Texas Company, Port Arthur	1,594,066.00	994,348.00	185,132.00	321,605.00
Gulf Refining Co., Port Arthur	1,978,514.83	2,092,385.30	174,763.87	284,893.50
Magnolia Petroleum Co., Beaumont	1,455,602.40	1,077,727.00	(*)	(*)
Humble Oil & Ref. Co., Baytown	1,744,996.79	1,235,350.05	1,373,978.08	1,440,753.75
Atlantic Oil Prod. Co., Atreco	4,210.30	.....	.....	.....
Pure Oil Co., Smiths Bluff	539,008.73	373,230.78	.....	.....
Total, refined	7,864,570.05	6,305,939.13	2,519,717.95	2,780,840.25

CRUDE

Company and port—	Coastwise— September	Coastwise— October	Export— September	Export— October
Standard Oil Co. (La.), Baton Rouge	255,085.00	139,163.00	.....	79,306.00
The Texas Company, Port Arthur	471,919.00	462,960.00	.....	51,526.00
Gulf Refining Co., Port Arthur	308,004.13	223,378.73	.....	.....
Magnolia Petroleum Co., Beaumont	762,546.35	748,921.68	(*)	(*)
Humble Oil & Ref. Co., Texas City	771,255.00	850,399.00	.....	.....
Ingleside	206,249.00	178,395.00	.....	.....
Baytown	76,954.00	.....	.....	.....
Harbor Island	2,179,094.00	2,048,397.00	.....	.....
Atlantic Oil Prod. Co., Atreco	504,681.16	660,284.89	.....	.....
Beaumont	310,641.55	192,196.62	.....	.....
Pure Oil Co., Smiths Bluff	707,929.02	782,323.77	.....	.....
Sun Oil Co., Sabine Pass	993,605.00	.....	.....	.....
Total crude	7,547,963.21	6,286,319.69	.....	130,832.00
Total shipments	15,412,533.26	12,592,258.82	2,519,717.95	2,911,672.25

*Magnolia Petroleum Co. makes no distinction in reports between coastwise and export shipments.

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PROPOSITIONS solicted for completing Tex-Oil Production Co.'s Redman Well No. 1, Ward County, Texas, now 5,070 feet, for submission to court Dec. 9. Lee Monroe, receiver, Barstow, Tex.

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Only Limited Activity in Chicago Area

Jobbers Expect Lower Prices With Result Their Stocks Are Below Seasonable Average. Furnace Oils Backing Up

By John B. Waldo

CHICAGO, Dec. 15.—There was only a limited activity in this market today. Gasoline movement was chiefly on contract with the spot business light. Jobbers are waiting for some change which they figure is bound to cause lower prices on gasoline for the next few weeks at least. While waiting for this adjustment which they believe will assuredly include a lower tank wagon price, they are doing with even less stocks than they usually carry at this time of the year. The consuming demand is limited by unpleasant road conditions. Prices are very little changed, major refiners holding for their price of 5¼ cents for U. S. Motor with sales in the open market being made quite commonly at 4 to 4¼ cents, the lower price being quoted direct to large buyers by refiners and brokers on refiners account.

The mild weather of the past two weeks has caused more of the furnace oil group of products to back up on the refiner and the tank wagon distributor. Distillates have been less in demand than the zero gas oils and are a little easier although if a really good oil is wanted with a low flash the price is where it was.

The Shell corporation has increased its price to the trade for distillate to 3 cents, an advance of one-eighth cent due to the fact it is well under contract and does not expect to have as much material as it planned on producing. There was some demand this morning for the zero gas and fuel oils suitable for furnace use but the business was chiefly scattered cars and did not bulk large. In the heavier fuels for industrial use the demand is now simply for immediate needs over the next two weeks or the month and the purchasing is at a low point for the season. Some industrial buying may develop during the week between Christmas and New Years. The week opened today with prices for zero oils steadily held, only the higher cold test oils showing any tendency towards lower prices.

Slowing Down Expected

It is now so near to the holiday season and the annual inventory period that a gradual slowing down of all business except in holiday lines is to be expected. The oil business is no exception and while it was rather quiet in this market, many in the industry were glad that it was so for they argue that a little time must be allowed for the necessary adjustments to be made following the action of the oldest and largest purchaser of crude oil in the Mid-Continent Field.

The crude situation with its supplies of cheap crude available to many refiners has another side to it, and that is that refiners who are receiving their crude over the pipe lines are still paying the posted price. This makes the cost of their material and the final cost of their products so much greater than that of those refiners who are able to save a part of this crude expense that pending a change in the posted prices, some of these refiners contend that they are entitled to a price adjustment. One stated that his refinery in the Chicago district was paying practically 50 cents a barrel more than a plant of the same company located in the Mid-Continent Field. Whether the big refineries in the Chicago district are paying the full price or not is not stated, but if the refiner owns the pipe line through which he receives his crude the price does not matter quite as much as he can deduct the pipe line dividends from the cost of his crude. The ones who might suffer would be the smaller plants who are customers and not part owners of the pipe line which ships them crude.

Steady Movement of Gasoline

The gasoline demand was not very active last week yet there was a steady movement on contract and some spot selling although the latter was light. One reason for the lack of demand in the open market, is that many of the larger jobbers have contracts for a part of their needs and their present requirements are so limited that their contract oil suffices. There are several of the largest and best known jobbers who are frequent buyers in the spot market when their business is at its height, who have not bought anything they state in the spot market so far this month. The major refiners who have the majority of the dealers' contracts admit that they are not selling them their full monthly quotas in many cases, but they also state that the jobbers are giving them their full business and are not ordering on the outside from other sources of supply.

Quotations at low prices have been sent out, largely from Tulsa, by both refiners and brokers. The refiners and the marketers in the Chicago district are trying to hold for higher prices. The tank car sales manager of one of the larger organizations stated that he had been trying to sell at the average of the published quotations but that he could not sell at that price, the smaller buyers stating that they could buy at the low of these published prices while the larger buyers are able to secure good material at one-fourth cent under the low of the quotations and in some cases even at a lower price. These low quotations come for the most part from three or four Group 3 refiners or from an equal number of brokers while so far as is known only one of the established selling concerns in this city has offered gasoline in competition although some others have sold at these prices when they found that they had to do so not to lose a customer's business.

The local sales manager for one of the refiners which is often spoken of as being a disturbing element in the industry stated that his lowest price at which he could sell to the jobbing trade in usual quantities was 4¼ cents and that his lowest price to a large buyer was 4⅛ cents. He also stated that his trade claimed that they could buy as low as 3¾ cents in quantities and that even the small fry claimed to have quotations of 4 cents. As a consequence he was laying off gasoline right now and trying to sell fuel and gas oils in which he found it possible to do some business although even in these lines the demand was limited by mild weather and by lack of industrial activity.

"Dog Eat Dog"

The competition between the large integrated companies has reached what appears to be the limit of concessions. The sales manager of one of these concerns said that he had traveled this territory for years, from Hudson Bay to the Gulf of Mexico and from Buffalo to Banff, but that he had never known conditions so bad as they are right now. He said, "it is dog eat dog."

One of the troubles which is bothering the industry is the form of contract which is being offered by one of the larger companies in this territory. The company has never in its history been noted for its liberal contracts but now it is offering contracts which are apparently more than liberal. There are three forms of contracts or rather three groups of contracts as each may have some special provision.

One of these provides for the reorganization of the business in which the owner is to be given the appraised value of the plant and equipment in preferred nonvoting stock. Common stock is to be issued and the owner is given 40 per cent of this goodwill stock while the refiner has 60 per cent. The guarantee is 7½ cents local protection with one-fourth cent a gallon for advertising. The basis is the service station price.

The next form of contract gives the dealer protection including local prices up to 6¾ cents with one-fourth cent added for advertising. This advertising is not charged with general advertising or cost of globes, signs, etc., but is to be expended for local advertising. One dealer in southern Minnesota stated that he should let his advertising money accumulate during the winter and put up four large sign boards in the spring. This form of contract gives the refiner the right to purchase the property if the owner wishes to sell during the life of the contract which is for three years, at the best price offered the owner but the owner is under no compulsion to sell if he does not want to do so.

The third form of contract is a simple marginal contract giving the jobber 5½ cents local protection with no top to the market. If the jobber can make more than 5½ cents there is nothing in the contract to prevent him. The same amount of money is allowed for advertising.

Contracts Cancelled

At least four of the larger refiners having contracts with jobbers in this territory state that they have had contracts returned to them cancelled by their customers who have made new contracts with the refiner mentioned. The management of the company offering these contracts has had its attention called to that clause in the code which prohibits interfering with an existing contract until its expiration and in some cases has stated that they were informed by the jobber that the contract with the other refiner had expired which was not the case and might have been easily verified by a phone call. The promise has been given that the matter "would be looked into."

The demand for the higher gravities of white gasoline has been light. A few cars move from day to day but there is none of the winter season demand for the higher gravities observable. Many stations are today, giving their customers the 400 endpoint at the price of the U. S. Motor grade. Refiners have sold for resale during the past week good 68-70 gasoline at 5 cents; 64-66 375 at 4⅞ cents; and 60-62 400 at 4 cents, which probably represent the bottom of the market today in these gravities. Of course the jobber paid the reseller at least a small profit on the material. It has been very difficult to determine the market on any gasoline so varied are the offerings. The majors are still holding for 5¼ cents Group 3 on U. S. Motor gasoline, and on the other hand some of the larger buyers insist that they can and have bought the same grade of material at 3¾ cents Group 3. The opinion seems to be that a jobber in differential territory at least has not had to pay over 4 cents for good gasoline if he was known to be a responsible concern and discounted his bills.

Some gasoline could be had at less in single car lots. It was not distress gasoline but was off in some detail, possibly in the recovery at intermediate points. Some jobbers who want 30 to 60 days' time have to pay as high as 4¼ cents which makes the accommodation cost them at least a quarter of a cent. Collections are still slow, with many jobbers. Refiners are finding it necessary to do a good deal of letter writing and some wiring to get their money in when due.

No Change in Detroit Situation

There has been no change in the Detroit situation. There is a curious angle to the condition in the eastern part of the Indiana territory. An oil man sent out a letter to a list of jobbers stating that he had a client who would buy a number of stations and he reports that he received scores of replies from well known concerns. Probably there was a good deal of curiosity back of these replies and that only a few oil jobbers would actually sell their business when it came to the show down, but they were considering the possible advantages of making a sale at their price at least. It is not that these dealers exactly fear conditions but they do find that these constant changes which are going on make their position as business men more or less uncertain.

The kerosene demand has become so entwined with the distillate sales that many oil men seem to treat them as one. The sales of kerosene are limited in this market and the price is practically that of a good distillate. Many refiners are still continuing to work off a good deal of their kerosene through their distillate sales and claim that the distillate is that much improved by the mixture. This practice has improved the distillate but it has increased the quantity and the result is that distillate is more freely offered than some other furnace fuels and in the past week of mild weather and light consumption of furnace oils has not quite held its own in this market. Refiners while holding to their regular quotation so far as any published prices are concerned, have sold a certain number of cars of fine distillate at less than their regular price. The bottom price for a good prime white distillate to the trade is now 2¾ cents.

Furnace Oils Slow

Furnace oils generally have suffered from lack of suitable weather. Two weeks back we had a cold spell that promised to last a while but it did not and we have been having above zero weather right along. This has caused a light demand and has resulted in some accumulations at refineries as well as distributors' plants. There is nothing serious as yet but if we do not have some cold weather in the next two weeks there will be some cancelling of orders and a general attempt to unload while the season is not too far spent. The zero oils are still in demand and the bulk of the inquiries are for these oils. The inquiries are practically all for the 32-36 gas oil or for the 28-30 fuel oil or the 18-22 fuel oil. There are occasional inquiries for some other grade but practically every inquiry is for a zero oil. As a consequence there is a strong market for these oils but other grades are rather soft. The furnace oil demand is running very largely to the gas oils rather than to the distillates and most if not all of the recent installations specify a gas oil grade of fuel, often called a fuel oil in the instructions to the home owner. There has been no real change in prices as yet. Some distributors are full and have asked that further shipments be delayed until they have room to take them in. The furnace oil trade is waiting for cold weather to give it some "pep," which it lacks at present.

Heavy industrial fuels are being inquired for in a limited way but the business doing is not of the kind to make anyone grow excited. The tendency is still to buy for immediate needs. One of the railroads was approached with a view to selling it a couple of tanks of crude oil and the purchasing agent replied that the company was so far from taking what it had bought for delivery on contracts, that it could not think of buying any more oil. The opinion was given that they would never catch up and that it would be necessary to arrange for some adjustment after the first

(Continued on Page 136)

Refined Market on the East Coast Is Soft

Renewed Strength in Paraffin Wax, Attributed to Big Export Order, the One Exception, and Prices Expected to Ease Off

By A. E. Mockler

New York Bureau, The Oil and Gas Journal, Rooms 1919-21, No. 154 Nassau Street

NEW YORK, Dec. 15.—Reductions in Diesel oil and lubricants, with general softness in all other divisions of the market, with the exception of paraffin wax, featured the East Coast refined products situation during the past week. Renewed strength in paraffin wax was attributed to a large export order in the market, and prices are expected to ease off again as soon as this foreign business has been taken care of.

Activity in the general products market continued along restricted lines, and buyers in most divisions of the trade are inclined to mark time until a more definite trend is discernible. There is a general feeling that no sustained improvement can be looked for in the general situation until at least well into the first quarter of 1931, and with this sentiment prevailing, hand-to-mouth buying is naturally the order of the day.

The continued drop in domestic crude output, as well as reported curtailment in Venezuela, have developed a somewhat more optimistic feeling in regard to market prospects for 1931, but general uncertainty will not be fully dispelled until more progress has been made by refiners in further cutting down their inventories of products.

Price cutting is still very much in vogue in East Coast products markets, and posted prices on major products appear to be the exception rather than the rule in many transactions. This is an unhealthy condition, but refiners realize that it is impossible to adjust this situation until the statistical position of the market works into firmer ground.

Earning statements for the year 1930, which will be coming out during the first quarter of the new year are expected to reflect to the full the present condition of the market. Refiners will be forced to make radical write-offs on their inventories of products at the year-end, and although this will further depress their earning report for the year, it will tend to put the industry on a firm footing for the upswing which is expected to develop during 1931.

Refinery Gasoline

The posted price for U. S. Motor gasoline in tank car lots remain held at 6½ cents per gallon at refinery terminals, with routine business reported. There is some price cutting being done, with some sales at 6¼ cents, and isolated offerings as low as 6 cents per gallon. The market tone is unsettled, and the weak position of the motor fuel markets in California and at the Gulf, particularly the latter, is expected to react against any immediate recovery in the East Coast situation.

Motor gasoline from the Gulf can be laid down at New York and other North Atlantic ports at prices materially under current going quotations and no real recovery in the local market position is looked for until the situation mends at the Gulf and in Group 3 territory.

Jobbers have been operating along conservative lines in the refinery market, and tank car movement has shown some falling off during the week.

Tank Wagon Gasoline

No formal revisions in posted prices have been made in this territory but the weaker refinery market is being reflected in further price cutting in retail markets. Gasoline of a leading brand is available in the metropolitan territory at as low as 8 gallons for $1, including the state tax of 2 cents per gallon, showing a return of about 10½ cents per gallon at the pump. The netback to the marketing refiner at this basis is extremely low.

Unusually sharp competition in retail markets has forced leading marketers to revert to their old policy of meeting local competition wherever it develops, and under these conditions there is naturally little uniformity in price schedules.

Premium gasolines are coming in for their share of price cutting, and the market for the high-test fuels is by no means as satisfactory to distributors as was the case last year.

Mild weather, coupled with business depression and unemployment, is seen as a factor which is adversely affecting sales of the premium grades of gasoline, and some reaction in consumption is looked for. This reaction, however, is expected to take the form of a drop in the percentage of normal sales increase, rather than any substantial falling off in actual gallonage.

Kerosene

The refinery market for 41-43 water white kerosene is posted at 6½ cents per gallon, on a par with the posted schedule for U. S. Motor gasoline. A little business is being done at the 6½ cents level, refiners declare, but a large part of the current volume is going through at 6 to 6¼ cents in tank car lots. The break in the Gulf kerosene market has tended to weaken the market position here, and an early cut in the "official" price at refineries is looked for.

Warmer weather has tended to retard kerosene sales at retail somewhat this week, although the aggregate gallonage of leading marketers is reported to be holding up fairly well for this time of the year. The large integrated companies with their own filling station chains are retailing kerosene at most of these stations, and are thus substantially broadening their controlled distribution of burning oil.

Diesel Oil

Weakness in the Diesel oil market culminated in a general reduction of 15 cents per barrel, effective December 11. Standard Oil Co. of New Jersey took the leadership in the reduction, and other principal marketers followed in the decline. The revised schedule posts Diesel oil at $1.85 a barrel, in bulk, at refinery terminals at most Atlantic Coast ports, with the market at Norfolk, Va., 20 cents over the general schedule at $2.05 a barrel. The previous quotation at Norfolk was $2.20.

While business in Diesel oil is holding up fairly well, there have been some indications of recessions in consumption at some ports, and the outlook is less favorable. While depression in the shipping industry is most seriously affecting vessels which require high operating costs, dullness in some lines has become so great as to adversely affect the amount of Diesel tonnage in active service.

Gas Oil

Consumption of gas oil is well maintained but an oversupply of this oil is making for continued weakness in the market position and further price cutting is reported this week. The posted quotation holds at 5¼ cents a gallon, bulk, at refinery terminals, but this is wholly a nominal figure, and business is going through at substantially lower prices. Sales of 28 plus recycled gas oil are reported at 4½ cents per gallon, and it is reported that even this low figure could be shaded on occasion.

Refiners are diverting low-grade gas oil into consumption as domestic heating oil in considerable quantities, but even this added business has failed to stimulate the market position. The trade here is looking for a lowering of the posted quotation in the near future, and according to some interests in the market, prices may be expected to go as low as 4 cents per gallon in the open market before a turn for the better can be looked for.

Lubs

Cylinder oils have continued in easy position during the week, and it remains a buyers' market on practically all grades. The only changes in quotations during the week were half cent reductions in Warren "E" and Oil City "E" grades, bringing the market down to 23 and 22 cents per gallon, respectively. Quotations on other grades of cylinder oils, however, were largely nominal, and there was considerable variance shown in quotations from the field.

In the bright stock market there has been a moderate inquiry for low cold test stocks, but movement has been retarded due both to unfavorable market conditions and the near approach of the year-end inventory time, blenders and compounders being adverse to adding to their stocks until after the turn of the year.

Notwithstanding weakness in other branches of the market, refiners have been successful in maintaining quotations for red and pale oils and the market is unchanged this week. Contract withdrawals by industrial consumers have fallen off somewhat this week, but refiners note a moderate movement on spot. Contracts for 1931 are being written on a maximum price basis, with buyers to get deliveries on the basis of prevailing prices at time of shipment.

Paraffin Wax

The market has shown a sharp upturn this week, largely on the recent inquiry by the Spanish Petroleum Monopoly for 3,700 tons of wax for December-January delivery. This order, it is understood, has not yet been filled, and the market has stiffened in anticipation of the placing of the contract. Spot 120-122 a.m.p. is an eighth higher at 3 cents per pound, with 125-127 a.m.p. quoted at a corresponding advance at 3¼ cents per pound. On 130-132 a.m.p. the market is up a quarter of a cent at 3¾ cents a pound with 133-135 a.m.p. up an eighth at 4¼ cents and 135-137 a.m.p. three-eighths higher at 4¾ cents per pound.

Domestic wax buyers are evidently of the belief that the current price advance is but a flash in the pan, and are remaining out of the market in anticipation of lower prices as soon as the foreign business has been taken care of. Refinery stocks are still excessive in many instances, and consumers evidently look for a continuance of a buyers' market well into the new year.

Furnace Oil

With more moderate weather prevailing, consumption of furnace oil has eased off somewhat, and the market this week is in quiet position. Prices remain unchanged both in the refinery market and in distributing channels, however.

Marketers with seasonal contracts report that their gallonage this year will establish new high records in many instances, and further increases in consumption are looked for over the next few years, notwithstanding increasing competition from gas and automatic coal stokers.

Bunker Oil

Bunker "C" remains quotably unchanged at $1.05 per barrel, in bulk, at refinery terminals, but the market tone is far from strong, and while there is no indication as yet of an impending cut in the local bunker market, a downward revision would not come wholly as a surprise.

Marine consumption of bunker oil has fallen off further, and depression in shipping circles appears to have grown more acute in some quarters, with a number of vessels laid up out of service pending some recovery in the movement of foreign trade.

There is considerable price cutting in heavy fuel oil for industrial consumption in Atlantic Coast markets, and this shading has extended into the bunker market as well in one or two instances, with some business reported to have been done at 20 cents per barrel under the posted price. The Gulf fuel oil market is low, and the California market is also weak, permitting the movement of fuel oils from these points to the Atlantic Coast at a laid down price considerably under the posted schedule.

Export Market

An irregular tone has developed in the Gulf market, with business still along relatively quiet lines. Two cargoes for France were reported placed during the week, each cargo running between 7,500 and 9,000 tons of 64-66, navy, and water white kerosene. It was reported that sellers out of the Gulf were running into much sharper competition from Rumania, where prices have recently broken to record low levels, and it is expected that Rumania will continue an important factor in the export market unless the industry in that country should restore the curtailment agreement which was abrogated at the end of November.

Offerings of kerosene at the Gulf at 4 cents for prime white and 5 cents per gallon for water white were withdrawn this week, and the market appeared to have steadied at 4¼ cents and 5¼ cents, respectively. There was comparatively little buying, however, and it was expected that the market would again react downward unless gasoline prices should show improvement. At present quoted levels, water white kerosene is offered at a higher level than Navy gasoline, a rather unusual situation.

Gasoline at the Gulf is in easy position. The market for 64-66 has broken to a new low for the year, with offerings at 5.95 cents per gallon, and Navy is likewise off to a new low at 5⅛ cents per gallon. Prices on 400 endpoint and 390 endpoint are nominally unchanged at 6 and 6¼ cents per gallon, respectively, with little trading.

Panuco crude for delivery during 1931 is reported available at 56 cents per barrel, plus tax, at Mexico loading terminals, but little buying interest is reported. Germany was formerly a large buyer of this oil, which was used in asphalt manufacture, but the high import duty on crude in Germany, coupled with the important increase in crude petroleum output in that country, is expected to substantially reduce imports of Mexican crude into Germany during the coming year.

California Oil Receipts

Receipts of California crude and refined petroleum at Atlantic and Gulf Coast ports for the week ended December 6 totaled 388,000 bbls., a daily average of 55,429 bbls., compared with 421,000 bbls., a daily average of 60,143 bbls. for the previous week, and a daily average of 59,516 bbls. for the month of October. Details follow:

	Bbls. of 42 gals.
At Atlantic Coast ports—	
Boston	50,000
New York	266,000
Total	316,000
Daily average	45,143
At Gulf Coast ports—	
Total	72,000
Daily average	55,429
At Atlantic and Gulf Coast ports—	
Total	388,000
Daily average	55,429

Distribution of total California oil receipts is as follows:

Gasoline	308,000
Fuel oil	80,000

Shipments of California refined petroleum products for Atlantic and Gulf ports have been unusually heavy during the

past several weeks. Recent clearances from California (with identity of owner of tanker moving the oil where such owner is an oil company) include the following cargoes:

To New York—78,300 bbls. of Diesel oil on the Atlas (Standard Oil Co. of New York); 10,900 bbls. of gasoline and 84,900 bbls. of Diesel oil on the Sylvan Arrow (Standard Oil Co. of New York); 76,200 bbls. of Diesel oil on the Ario (Standard Oil Co. of New York); 94,300 bbls. of kerosene on the Empire Arrow (Standard Oil Co. of New York); 96,600 bbls. of gasoline on the Dixie Arrow (Standard Oil Co. of New York); 77,700 bbls. of Diesel oil on the Astral (Standard Oil Co. of New York); 78,200 bbls. of gasoline on the Atlantic Sun (Sun Oil Co.).

To Paulsboro, N. J.—76,500 bbls. of gasoline on the K. R. Kingsbury (Standard Oil Co. of California).

To Perth Amboy, N. J.—78,200 bbls. of gasoline on the Pat Doheny (Richfield Oil Co. of California).

To Philadelphia—114,500 bbls. of gasoline on the Western Sun (Sun Oil Co.).

To Chester, Pa.—116,000 bbls. of gasoline on the Sunoil (Sun Oil Co.).

To Baltimore—73,200 bbls. of gasoline on the Dirigo (The Texas Company); 46,500 bbls. of Diesel oil on the Monatawny.

To Wilmington, N. C.—80,000 bbls. of kerosene on the Antietam.

To Port Arthur, Tex.—72,200 bbls. of gasoline on the Illinois (The Texas Company).

Imports

Imports of crude and refined petroleum at the principal United States ports for the week ended December 6 totaled 1,676,000 bbls., a daily average of 239,428 bbls., compared with 2,306,000 bbls., a daily average of 329,428 bbls. for the previous week, and a daily average of 258,548 bbls. for the month of October. Details follow:

	Bbls. of 42 gals.
At Atlantic Coast ports—	
Baltimore	319,000
Boston	212,000
New York	677,000
Philadelphia	249,000
Others	116,000
Total	1,573,000
Daily average	224,714
At Gulf Coast ports—	
Galveston district	45,000
New Orleans and Baton Rouge	58,000
Total	103,000
Daily average	14,714
At all United States ports—	
Total	1,676,000
Daily average	239,428

Distribution of total imports is as follows:

Crude	1,039,000
Gasoline	268,000
Gas oil	77,000
Fuel oil	292,000

Petroleum Exports

A further drop in exports of refined petroleum products through the local port was recorded for the week ended December 8. New business which developed during the week was generally confined to small lots, and the outlook over the balance of the year was less favorable. Price cutting on refined products at the Gulf, coupled with sharp selling competition from Rumania and Russia, is tending to cut substantially into foreign markets for American refined products, and local operators are finding it necessary to meet some extremely low prices in closing business.

The following table shows principal exports of refined petroleum products from New York for the past three weeks (all figures in gallons unless otherwise noted):

	Week ended		
	Dec. 8	Nov. 29	Nov. 22
Gasoline	615,000	210,000	240,000
Naphtha	275,000	360,000	575,000
Kerosene	130,000	9,000	147,000
Fuel oil	30,000	100,000	97,000
Lubricating oil	980,000	3,150,000	2,747,000
Petroleum, ref.	595,000	155,000	1,780,000
	Pounds		
Petrolatum	16,000	155,000	
Paraffin wax	1,065,000	1,295,000	3,090,000
Refined	795,000	80,000	635,000
Scale	121,000	470,000	425,000
Lubricating grease	530,000	575,000	1,245,000

Heavy shipments of paraffin wax are looked for from Atlantic Coast ports during the next two months, the Spanish Petroleum Monopoly being in the market with an inquiry for several thousand tons for shipment during this period.

Operators are looking for an early revival in demand for lub oils for export, but it is not now believed that this recovery will be witnessed until after the turn of the year.

KANSAS FIELDS

(Continued from Page 48)

cor. NW NW, Section 21-14-13w, has been abandoned at 3,332 feet.

Sedgwick County

Roy Ramsey's No. 1 Davies, SW cor., Section 17-27-2, has been completed for 300 bbls. in chat 2,951-78 feet. Magnolia Petroleum Co.'s No. 3 Wheeler, NE cor., Section 19-27-2, made 385 bbls. from chat 2,948-71 feet.

Sumner County

Shell Petroleum Corp.'s No. 10 Churchill, SW cor. NE NE SW, Section 23-31-2, is drilling at 300 feet. The Prairie Oil & Gas Co.'s No. 1 Olsen, CEL SW SE, Section 34-34-2, has been abandoned at 3,507 feet.

Stevens County

Pioneer Petroleum Co. and Rosenthal's No. 1 Morris, C SE, Section 29-34-38w, has been completed for 3,353,000 feet of gas in sand 2,737-2,825 feet. Liberal Oil & Gas Co.'s No. 4 Bowles, C N half NE, Section 4-35-34w, made 1,000,000 feet of gas in sand 2,715-30 feet.

MICHIGAN FIELDS

(Continued from Page 56)

NE, Section 8-10n-16w, Muskegon Township. At 4,000 feet it was still drilling in a gray-blue shale in which occasional limestone shells had been encountered. As drilling has been progressing at the rate of nearly 100 feet in the shale every 24 hours the well is expected to reach the Trenton limestone within a few days.

Muskegon Field

The Shoup Oil & Gas Co.'s No. 6 George H. Shoup well, NW NW, Section 8-10n-16w, Muskegon Township, is the only other drilling well in the Muskegon Field. Casing has been rerun above the Monroe gas pay sands at about 2,200 feet and it is to be drilled in immediately. Gas sands are expected at about 2,215 feet.

Plugging of two old wells in the Dundee formation was completed this week. They are the Muskegon-Ottawa-Davis Oil Co.'s No. 2 Otto and Albert Becker, NW SW, Section 4-10n-16w, Muskegon Township, and the McAfee-Refior Oil Co.'s No. 1 Clifford Anderson, NE NW, Section 9-10n-16w, Muskegon Township.

No. 2 Becker was to have been deepened to the Niagara formation but operators finally decided to abandon it. It was originally dry in the Dundee although No. 1 on the same lease was one of the largest oil producers struck in the field when it made 3,000 bbls. of oil and about 5,000,000 feet of gas in the first 24 hours.

Walter McLaren's No. 2 Wright, in Section 18-5s-14w, Cass County, was dry and plugged in the Trenton formation at a depth of about 2,700 feet.

Mount Pleasant Field

The only completion in the Mount Pleasant Field of central Michigan was a 50-bbl. well brought in at a total depth of 3,667 feet on the Leonard Petroleum Co.'s No. 1 Wezensky, NW SW SE Section 30-15n-3w, Leaton Pool, Denver Township, Isabella County. Dundee limestone was topped at 3,614 feet with pay sands at 3,657-67 feet. The well swabbed 30 bbls. in the first 24 hours.

Prospects of considerable new development in the Broomfield Township Marshall formation gas area are seen in the announcement that an option has been taken on all of the production of the Isabella Oil Development Co., whose No. 1 Keeler-Mitchell, Section 10-14n-6w, opened the field when it came in for 10,000,000 feet. Since then six other gas producers have been completed in the Marshall formation at a depth of from 1,300 to 1,400 feet and with a daily flow of from 1,000,000 feet up to discovery well which is still the largest.

Announcement was made that the Consumers Power Co., one of the largest public utilities in Michigan, had purchased an option on all of the Isabella company's output to be developed between now and July 1, 1931. As a result the company will start an extensive drilling program in the near future to determine the extent of the gas area in which the Consumers company is interested before laying gas lines. The option was made with the exception that the Isabella company will have developed enough reserve gas by July 1, 1931, to run a line from the wells to the city of Mount Pleasant. Gas will be delivered to the city limits at a minimum price of 12 cents a 1,000 feet and a maximum of 18 cents, according to the agreement with the utility company. Right of way for the proposed pipe line was purchased some time ago when the operating company made preliminary arrangements with the Consumers company to handle the gas in the city. Six producers in the Broomfield area now have an aggregate potential daily production of about 25,000,000 feet. The new agreement calls for participation of the Consumers company in the cost of further drilling operations to test the potential reserves of the area.

ONLY LIMITED ACTIVITY IN CHICAGO MARKETS

(Continued from Page 134)

of the year. The outlook is for a slow demand until the beginning of next year when there will be some activity as the season of 1931 opens. Many of the construction jobs that are being pushed ahead will be ready for work in the spring of next year and should not only give employment to many idle workers but use a lot of fuel oil as well.

No Change in Prices

There has been no change in prices. Very little oil suitable for the season is being offered by refiners. Refiners continue to reduce their crude runs and are making less fuel oil than they had expected to so that the light demand is met by a small output and stocks are no larger if as large. The quantity of zero oils is small. Refiners are firm in their ideas as to the zero oils and any price reductions made are at the expense of the seller, who is working on a smaller margin to have something moving.

The amount of business in lubricating oils is limited to the needs of the buyers. Industrial oils are flat and the demand for motor oils is light. The various refinery stocks continue to show ease as to price while waiting for the demand to develop. Contracts made are for the actual needs of compounders and others, just enough to make a good start as it were and the bulk of the business is to be placed later.

In distributing circles there is little to be noted. The price situation shows little improvement. Neither is it really any worse at this time. There are some parts of the country where the price situation seems to be chronically bad. One of these is Detroit. There are other parts where there is little trouble and right now the bad spots are in poor shape while the remainder of the territory is in pretty fair shape.

REDUCE RUNS IN OLD FIELDS

BRADFORD, Pa., Dec. 13.—The total pipe line runs from the Bradford Field in the week ending November 29 averaged 18,251 bbls. per day, and from the Allegany Field 6,084 bbls. per day, a total of 24,335 bbls. per day from both fields. In the two previous weeks the runs from the Bradford Field averaged 23,763 bbls. and 24,823 bbls., respectively, and in the Allegany Field 7,180 bbls. and 7,319 bbls., respectively. The figures indicate an average for both fields in the three weeks of 30,953 bbls., 32,142 bbls. and 24,335 bbls. The decline was in line with the recent agreement to further reduce runs.

The Bradford and Allegany Fields are producing about 20 per cent of their potential, as it is estimated they could produce an average of 125,000 bbls. per day for the next 10 years if there were sufficient demand for the crude and the price was high enough to warrant a great and continuous drilling campaign.

F. R. McGREW PRESIDENT, LOUISIANA-ARKANSAS

SHREVEPORT, La., Dec. 13.—F. Ray McGrew, president of the Standard Pipe Line Co. of Louisiana, was made

F. Ray McGrew

president of the Louisiana-Arkansas division of the Mid-Continent Oil and Gas Association at the annual meeting of the board of directors here. He succeeds C. R. Minor of the Gulf Refining Co. J. R. Crawford and W. G. Ray, independent operators, and H. W. Bell of the Lion Oil Refining Co. of El Dorado, Ark., and D. W. Harris, vice president Arkansas Natural Gas Corp., were made vice presidents. Harry H. Smith, general secretary of the association, of Tulsa, was the speaker at the meeting, discussing existing conditions in the industry.

NEW BOOK BY WESTCOTT

"Oil—Its Conservation and Waste," by James H. Westcott, Beacon Publishing Co., New York, has been published in a new edition. The author stresses in the 274-page volume the large amount of what he terms "frozen or wasted" capital and the "unnecessary and burdensome" operating expenses occasioned by unintelligent and intensive drilling, expressing the hope this material will interest the law makers, those who believe in conservation of natural resources and those who have the interest of the oil industry at heart. He says:

"It is probable that the realization of the pertinent facts about the oil industry will offset some of the resentment felt against it and put it in the proper light. Its leaders and dominating personalities should give out more information from time to time. The ancient practice of secrecy is passe and no longer applicable to modern progressive and investment conditions. If political snipers misconstrue this information, the facts will be available for thinking men."

AUTOMOBILE PRODUCTION

Automobile production in the United States and Canada in November was 146,185 cars and trucks, compared with 154,585 in October and 226,997 in November, 1929, according to the National Automobile Chamber of Commerce. Including November the production in the first 11 months of this year was put at approximately 3,361,217 units, compared with 5,496,213 in the corresponding time last year.

DEATH OF WILLIAM MEACHAM

BRADFORD, Pa., Dec. 13.—William Meacham, for 50 years engaged in the oil business in the Bradford Field, most of the time as a producer, died at his home here yesterday after an illness of eight weeks duration. He was born in England 80 years ago and came to Bradford in 1879.

Manufacture of Natural Gasoline

Natural Gasolines Gain as Source of Motor Fuel Supply

Unlike straightrun gasoline and benzol, natural gasoline is more than holding its own as a source of motor fuel supply according to data available from the reports of the Bureau of Mines. According to the latest report of the Government which covers refinery, natural gasoline plant and benzol plant operations, natural gasoline production accounted for 11.1 per cent of the total motor fuel supply the first 10 months of this year. This compares with 10.8 per cent for the first 10 months of last year.

Natural gasoline output, the first 10 months of this year totaled 41,223,000 bbls. For the same period in 1929, the production was 39,350,000 bbls. This production is accounted for as natural gasoline blended at refineries, run by pipe line to refineries in California, blended at natural gasoline plants and sold direct to jobbers. There was an increase in natural gasoline blended at refineries and sold to jobbers with a decrease in the other two outlets.

The situation in regard to natural gasoline is in contrast to that existing in regard to straightrun gasoline and benzol. The production of straightrun gasoline which is distilled direct from crude oil decreased from 205,119,000 bbls. the first 10 months of 1929 to 192,656,000 bbls. for the same period this year. This is a decrease of 12,463,000 bbls., or 6 per cent, for the first 10 months of this year.

Benzol, which is a minor factor in motor fuel supply, decreased from 2,572,000 bbls. the first 10 months of last year to 2,319,000 bbls. for the same period this year. This is a decrease of 10.9 per cent.

Cracked gasoline led all the other gasolines in gain the first 10 months. The production of cracked gasoline from all refineries in United States the first 10 months of this year was 137,368,000 bbls., an increase of 20,435,000 bbls., or 17.5 per cent, when compared with the same period in 1929. Although refiners as a unit have made substantial curtailments in their crude oil runs to stills, which has been reflected in the decreased output of straightrun gasoline, they have continued to expand their cracking facilities and so far this year have more than offset the decreases in other sources of supply.

This development is steadily changing the relative importance of gasolines in the total motor fuel supply. Straightrun gasoline which a few years ago was practically the only source of motor fuel has decreased in importance so that the first 10 months of this year it only accounted for 51.6 per cent of the total supply. In October, the latest operations to be reported, the percentage was 48.6 per cent.

The relative importance of the motor fuel sources is shown in the following table:

	First 10 months	
	1930	1929
	%	%
Straightrun gasoline	51 6	56 3
Cracked gasoline	36 7	32.1
Natural gasoline	11 1	10.8
Benzol	.62	7

Natural gasoline is furnishing a larger percentage of motor fuel despite the curtailment programs which have been in effect in all the flush fields during the past year. In order to keep the crude oil supply in line with the demand, it has been necessary to hold back the production of crude oil from producing wells and this usually has meant a decrease in the supply of casinghead gas available to the natural gasoline plants. This decrease in supply has been offset by increased yields from the gas.

STANDARD COMPANY COMPLETES THIRD KETTLEMAN HILLS PLANT

The third plant of the Standard Gasoline Co., located in the North Dome area of the Kettleman Hills Field, is now practically completed and will be ready to operate this month. The plant which was designed and constructed by the Standard company has a rated capacity of 100,000,000 cubic feet of gas daily.

In design it is similar to Nos. 1 and 2 plants of the Standard Gasoline Co. in the Kettleman Hills Field. These plants which have been in operation for some time, are now producing approximately 200,000 gallons of high recovery natural gasoline daily. The minimum recovery of the Standard gasoline in the Kettleman Hills area is 96 and the recovery of part of the production has run as high as 98 per cent. In addition to the Standard company four other companies each have plants operating in the Kettleman Hills Field. These companies are The Texas Company, Los Vietos Producing & Refining Co., Superior Oil Co., and Western States Gasoline Corp.

With the latest Standard plant in operation, the natural gasoline production in the Kettleman Hills area will total approximately 600,000 gallons daily. All of this gasoline is transported to Coastal terminals in pipe lines owned by the Union Oil Co. and the Standard Oil Co. of California of which the Standard Oil Co. of California is a subsidiary.

Reports from California are to the effect that since the Supreme Court of the State has upheld the constitutionality of the State's gas conservation law there is now some question as to how much casinghead gas will be available for the operation of the natural gasoline plants. At present there is no market for more than 50 per cent of the residue gas available from the plants and it is believed that a strict enforcement of the State's conservation would materially change this situation.

Due to this situation together with the

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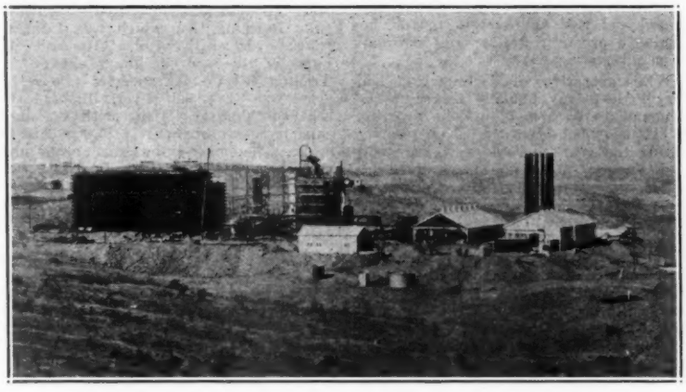


No. 3 plant of the Standard Gasoline Co. in the Kettleman Hills Field.

AIRPLANE DEMAND FOR NATURAL GASOLINE SHOWS STEADY GAIN

Airplanes, which are large consumers of natural gasoline, are steadily increasing in importance as buyers of motor fuels, according to a report of the aeronautics branch of the Department of Commerce. According to the report which covers the requirements of civil aircraft only, airplanes consumed 6,218,271 gallons of gasoline the first six months of this year, which compares with 6,285,374 gallons for all of last year. A substantial part of the motor fuel was a special grade of natural gasoline.

The gasoline requirements of miscellaneous operations, however, is decreasing, according to the report. This demand totaled 6,669,261 gallons the first six months of this year, which compares with 14,235,243 gallons for all of 1929.

Airplanes engaged in both scheduled and miscellaneous flying operations consumed 12,887,532 gallons of gasoline and 537,212 gallons of oil during 68,669,928 miles of flying in the six months' period, January-June, 1930.

Scheduled air transport planes flew 16,902,728 miles and consumed 6,218,271 gallons of gasoline and 202,249 gallons of oil during this six months' period. A total of 6,669,261 gallons of gasoline and 334,963 gallons of oil were used in 51,767,200 miles of flying by airplanes used in miscellaneous operations such as experimental, exhibition, industrial, student instruction and pleasure flying, according to the estimate.

Although the mileage flown by scheduled operators was less than that flown in miscellaneous operations, nearly as much gasoline was consumed due to the general use of larger aircraft with increased horsepower by the scheduled operators, consequently increasing the consumption of fuel per mile flown.

Figures for the full year 1929 show that a total of 135,141,499 miles were flown by both types of operations and that 20,520,617 gallons of gasoline and 1,026,030 gallons of oil were consumed. Airplanes engaged in scheduled operations during 1929 flew 25,141,499 miles and used 6,285,374 gallons of gasoline and 314,268 gallons of oil. Airplanes flying in miscellaneous operations flew 110,000,000 miles and consumed 14,235,243 gallons of gasoline and 711,762 gallons of oil during that period.

Statistics for the four years, 1926-1929, and the first six months of 1930 are contained in the following table:

ESTIMATED GASOLINE AND OIL CONSUMPTION BY COMMERCIAL AIRCRAFT FOR THE CALENDAR YEARS 1926, 1927, 1928, 1929 AND FIRST SIX MONTHS OF 1930

(Consumption of gasoline and oil in gallons)

	1926	1927	1928	1929	Jan.-June, 1930
Scheduled Air Transport Operations					
Airplane miles flown	4,318,087	5,870,489	10,673,450	25,141,490	16,902,728
Gasoline consumption*	833,617	1,174,098	2,134,690	6,285,374	†6,218,271
Oil consumption*	43,181	58,705	106,735	314,268	202,249
Miscellaneous Operations‡					
Airplane miles flown*	18,746,640	30,000,000	60,000,000	110,000,000	51,767,200
Gasoline consumption*	2,426,028	3,882,351	7,764,702	14,235,243	6,669,261
Oil consumption*	121,301	194,118	388,235	711,762	334,969
Total for All Operations					
Airplane miles flown	23,064,727	35,870,489	70,673,450	135,141,499	68,669,928
Gasoline consumption*	3,259,645	5,056,449	9,899,392	20,520,617	12,887,532
Oil consumption*	164,482	252,823	494,970	1,026,030	537,218

*Estimate based on reports from operators. †Due to the general use of larger aircraft with increased horsepower by the scheduled operators, the consumption of gasoline per mile flown has greatly increased. ‡Miscellaneous flying includes such operations as experimental, exhibition, industrial, student instruction and pleasure flying.

TO HASTEN AND EXPAND STANDARDIZATION PLANS

A more extensive program for standardizing natural gasoline plant equipment was favorably passed upon at a meeting of the Natural Gasoline Association of America held at the Tulsa headquarters, December 10. The equipment manufacturers and the plant operators see distinct future advantages in such a plan although a considerable amount of work in that direction has already been accomplished. In the past, the standardization of equipment has been sought by individual companies, usually the larger manufacturers. Now it is the plan of the association to pool the work and benefits and expand its scope.

The purpose of the program is to cut the cost of new equipment and decrease maintenance costs. As a result, the manufacturers will be relieved of having to build to the design of the individual company engineers wherever it is practicable to choose a standard method.

Such a program will naturally involve considerable work and extend over a long period of time. Similar programs have already been adopted by the refining and producing branches of the industry under the direction of the American Petroleum Institute. These will tend to overlap in some instances but at present the gasoline association will restrict its work to that portion of the equipment used only in natural gasoline plant work and co-operate with the other committees in those instances where the same equipment is used in the several branches.

In the past year a standard form of gas contract was adopted and within the past week new standardized specifications for the various grades of gasoline were adopted. Thus the equipment program is simply another part of the general plan of standardization within the industry.

NEW SAYRE PLANT

The new gasoline plant of the Westoak Gasoline Co., located near Sayre, Okla., is now operating furnishing an outlet for some of the large gas supplies in that territory. Sayre is located in Beckham County which adjoins the Texas Panhandle.

The gasoline plant has a capacity of 15,000,000 feet of gas daily. The residue gas is being taken by the Oklahoma Carbon Industry, Inc., which has completed a carbon black plant. It is understood that the gasoline plant facilities in the field will be enlarged if additional outlets for the natural gas can be found. It is estimated that the Sayre area has a potential natural gas production in excess of 300,000,000 feet daily.

Brief Items for Petroleum Refiners

TWO GULF PLANTS WILL START OPERATING SOON

The two new refineries which the Gulf Refining Co. is building near Pittsburgh and Toledo, Ohio, are nearing completion and will be in operation shortly after the first of the year. The new plant on Neville Island, outside of Pittsburgh, will start operating about the middle of January. This plant will have a crude oil and cracking capacity of 6,000 bbls. daily.

The new plant at Toledo will be completed a month later. This plant is located on the site obtained when the Gulf Oil Corp. purchased the Toledo refinery and marketing properties of the Paragon Refining Co. The Gulf is installing new crude oil distillation and cracking facilities. When completed the refinery will have a combined crude oil and cracking capacity of 12,000 bbls. daily.

The Gulf company is considering but has not definitely decided on the construction of a new refinery at Staten Island, New York, according to officials.

The Gulf interests through the Gulf Pipe Line Co. of Oklahoma and the Gulf Pipe Line Co. of Pennsylvania have practically completed a 10-inch pipe line extending from Glenn Pool in Oklahoma to Spencerville, Ohio, a distance of 900 miles. This trunk line through connecting lines will serve the Toledo and Pittsburgh refineries and a third plant which the Gulf company will probably build during the coming year at Cincinnati. The pipe line will start running crude from the Mid-Continent just as soon as the line has been tested.

ANNOUNCE REFINERY MEETING

The first midyear meeting to be held under the recently adopted uniform divisional organization plans of the American Petroleum Institute will be that of the division of refining. The date is April 15-16, 1931, and the place is the Statler Hotel at St. Louis, Mo.

The midyear meeting will permit technical and business men and others engaged in the refining branch of the petroleum industry's work to discuss mutual problems. The various committees active in this division will be in session and it is hoped that the mass of detail and technical work which has congested the program of the institute's annual meeting can be accomplished at the separate divisional gathering. In this way, it is expected, there will be more time at the annual meeting for discussion of and action upon the general problems of the industry. Reports and recommendations growing out of the midyear meeting also will be available.

BUYS SUNBURST CRUDE

The state royalty oil from Montana state lands in the Sunburst Field has been contracted to A. S. Arronow, an oil operator of the state. Mr. Arronow has a refinery at Kalispell, Mont., and has just completed the purchase of the Milk River refinery at Havre, in company with B. S. Arronow. The royalty oil from the Cat Creek Field will be refined at the Yale Oil Co.'s refinery at Miles City.

DAVIS, NORTHWEST MANAGER

George B. Davis has been appointed division manager in the northwestern states with offices in the Plymouth Building at Minneapolis, Minn., for the Burford Oil Co. During the past year, Mr. Davis represented the company in the Ohio area. Previous to this he was sales manager for the Refiners Oil Sales Corp. of Shreveport, La.

VACUUM OIL MAKING RAPID PROGRESS ON ITS PROGRAM OF INTEGRATION

By A. E. Mockler
New York Bureau, The Oil and Gas Journal

NEW YORK, Dec. 15.—Vacuum Oil Co., which until the current year was known principally as a producer and marketer of high-grade lubricants, has carried on an extensive program on integration during 1930 and regardless of whether the consent of the federal Government is secured to the consolidation of Vacuum with Standard Oil Co. of New York, the former company will go into 1931 with its operations thoroughly integrated and well on the way toward becoming a producer, refiner and marketer on a national scale.

While executives of Vacuum have had very little to say publicly regarding the company's expansion plants, its program of extension has been carried on steadily during the year, and the new year will find Vacuum a by no means inconsiderable factor in marketing operations in many states.

Particular attention has been devoted by Vacuum this year to the acquisition of marketing companies. This policy has been dictated by two needs: First, that of establishing adequate marketing outlets for its production of lubricants, and, secondly, the development of a marketing organization sufficient to handle the production of gasoline and other products of the company's refineries. With other major units in the industry carrying on a program of integration of marketing operations, Vacuum, which had hitherto enjoyed a national distribution of its lubricants through a number of the major companies, found many of its markets affected through the action of its former distributors in placing upon the market lubricating specialties carrying their own brands.

The most important acquisition by Vacuum this year has been that of the White Star Refining Co., which was formally taken over on November 10, and the name of the new subsidiary changed to Trenton Oil Co. It operates two refineries, one at Wood River, Ill., and the other at Trenton, Mich., with combined capacity of approximately 11,000 bbls. of crude. The company has some crude production, necessary pipe line facilities, etc., and has a complete marketing division. Trenton Oil, as of December 31, 1929, owned and operated approximately 400 filling stations in Michigan, and in addition supplied about 900 others under lease in Michigan, Ohio, Illinois, Indiana, Missouri and Ontario, Canada. The distribution of these 1,300 stations last year was sufficient to account for the entire gasoline output of the White Star refineries. An interesting feature of the business of White Star was that the com-

(Continued on Page 150)

APPOINT E. H. EDDLEMAN MANAGER OF AMERICAN

E. H. Eddleman who has been assistant manager, has been appointed manager of the American Refining Properties of Wichita Falls, Tex., effective January 1. He succeeds J. C. Mytinger who has resigned to accept the position of president of the Security National Bank of Wichita Falls.

Mr. Eddleman, who is an attorney, has been connected with the oil business in the Wichita Falls area since 1913. He became head of the land department of the Texhoma Oil & Refining Co. in 1922 and in 1924 was appointed a vice president of the company.

He continued in that position when the Texhoma properties were taken over by the Continental Oil Co. of Texas. He resigned that position in 1927 to become one of the receivers of the American Refining Properties. Since that time, he has been in charge of the refining division. He is a vice president of the Western Petroleum Refiners Association.

CONSOLIDATE CLEVELAND COS.

NEW YORK, Dec. 15.—Vacuum Oil Co. will consolidate the business of Great Western Oil Co. and Commonwealth Oil Co., Cleveland marketing subsidiaries, into a single unit to be known as the Commonwealth Oil Co., as a further step in the integration of the company's operations.

The two companies, together, operate approximately 70 wholly owned filling stations in Cleveland and have a great number of dealer accounts. In addition, Great Western owns and operates a number of retail stations in Michigan territory covered by White Star Refining Co., another Vacuum subsidiary. White Star will take over all Great Western stations in Michigan.

It is expected that White Star will also take over the stations of the Moreland Oil Corp. of Adrian, Mich., also acquired by Vacuum some time ago.

WILL FORMULATE MODEL LAW FOR GASOLINE TAX

Archie N. Bobbitt, state auditor of Indiana and president of the North American Gasoline Tax Conference has appointed a committee to draft a model law for states and provinces covering the collection of gasoline taxes and inspection taxes. Members of the committee are Dewitt Billman, Illinois, chairman; Seth G. Wells, Kansas; E. D. Graham, Oklahoma; James I. Inlow, Indiana; and James Duce, Colorado. Associate members are Frank E. Packard, tax attorney of the Standard Oil Co. of Indiana and James T. Dortch of The Texas Company.

This committee will endeavor to draw up a law which will be adopted by all states and Canadian provinces. Lack of uniformity in present statutes is responsible for considerable trouble in enforcement and has also worked a hardship on many oil companies which operate in several states.

OKLAHOMA CHEMIST MEET

The Oklahoma section of the American Chemical Society held a symposium on wax at the Tulsa University December 13. Papers were read by Prod. F. W. Padgett of the University of Oklahoma, C. E. Reistle of the Bureau of Mines, E. W. Zublin of the Texas Pacific Coal & Oil Co. and G. S. Michell of the Barnsdall Refineries, Inc. These papers, in general, were presented as progress reports on work now under way in the respective laboratories.

FIRST FUEL DELIVERY

Associated Oil Co. has received an order for an initial delivery of 70,000 bbls. of fuel oil to the Great Northern Railway at Everett, Wash. This delivery will be made December 31 in an Associated tanker, and represents the first unit of a new contract for approximately 1,750,000 bbls. of fuel oil, to be delivered over a period of a year, the contract becoming effective January 1, 1931.

REFINERS ASSOCIATION PREPARES FOR MEETING

R. R. Irwin, president of the White Eagle Corp. of Kansas City has been appointed chairman of a committee which will arrange for the annual meeting of the Western Petroleum Refiners Association. Other members of the committee are C. L. Henderson, vice president of the Vickers Petroleum Co., Wichita, Kans., and P. M. Miskell, manager of the refining and marketing departments of the Empire Oil & Refining Co. Announcement of the appointment of the committee was made by L. R. Crawford, president of the association.

The association will hold a one-day meeting. The place of meeting and the exact date which will be in early March will be announced in the near future.

A. S. Hopkins, president of the Standard Oil Co. of Kansas and chairman of the association's manufacturing committee has appointed a committee which will arrange a program for the manufacturing group. Business sessions for this group will be held in connection with the annual meeting. E. A. Metcalf, superintendent of the Standard Oil Co. of Kansas refinery at Neodesha, J. A. Sartori, general superintendent of refineries for the Producers & Refiners Corp. and H. W. Camp, general superintendent of refineries for the Empire Oil & Refining Co. have charge of the program. This program will be devoted to prepared papers and discussions of special interest to plant operators.

R. M. ANDRUS TO RETIRE

R. M. Andrus, who has been connected with the refinery operations of the Standard Oil Co. of Indiana since 1896, will retire from active service on January 1, according to an announcement by officials of the company.

Mr. Andrus' first employment with the Standard of Indiana was at the Whiting, Ind., refinery. Starting as a pumper's helper, he worked in several positions at the plant and was in charge of a department when he was transferred to the Casper, Wyo., refinery of the Midwest Refining Co. in 1920. He has been manager of Plants 1 and 2 at the Casper refinery for several years.

Mr. Andrus, accompanied by Mrs. Andrus, expects to spend some time in travel. He will return to Casper next summer for a short time to have charge of construction work at the refinery.

SELL SKIMMING PLANT

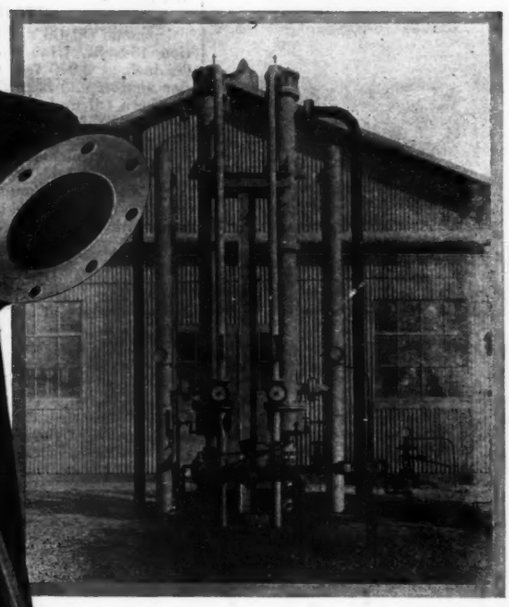
A small skimming plant located at Kalispell, Mont., was sold to local capital at a sheriff's sale on December 15. The plant which was formerly owned by the North American Oil & Refining Co. of Minot, N. D., had not been operated for several years.

Last month, the plant of the Reliance Refining Co., also located at Kalispell, was sold by the State to satisfy a judgment of $28,824.55 for unpaid gasoline taxes and a debt of $4,460.19 owed to A. S. Aronow. The State has taken over the real estate and the refinery equipment is now owned by Mr. Aronow.

CHANGES IN SALES MANAGERS

CHICAGO, Dec. 13.—Owen McLiecer is now in charge of the sales at the Chicago office of the Valvoline Oil Co. Robert Cross, formerly in charge of sales at this office, is now in charge of sales at the Detroit office. The new bulk plant of the Valvoline Oil Co. at Detroit is rapidly approaching completion. Robert Bruce White, general sales manager, will continue to make his headquarters at the New York office.

The shells of all G-R Heat Transfer Apparatus are welded by the G-WELD process.



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You don't believe in S. C. any more? One trial run of MacClatchie's Valves will convince you. Write us tonight. MacClatchie Mfg. Co., Compton, California

*If you have children you know that Santa Claus *sells* his good things. MacClatchie's man does too, but he never boosts his prices during the holidays.

ROCKY MOUNTAIN AREA

(Continued from Page 131)

than heretofore expected, and the gas sand at 3,457 feet, at first thought to be the Muddy, showed upon analysis of cuttings to be a member of the Frontier series. The Texas Production Co.'s No. 1 State, SW SW, Section 36-34-95, Alkali Butte, is bottomed at 4,485 feet and fishing for bailer.

Sublet County

Circle Oil Co.'s No. 2 Elkhorn, NE, Section 17-27-113, La Barge district, is drilling at 1,850 feet with a show of oil and gas.

UTAH

Diamond Oil Co.'s No. 1, SE NW, Section 16-8s-5e, Utah County, has landed 6⅝-inch at 2,970 feet to make a formation shutoff and is drilling ahead. Utah Southern Oil Co.'s No. 1 Balsy, NE NE, Section 31-23-21, Salt Valley Dome, Grand County, is building derrick. Arrowhead Petroleum Corp.'s No. 1, SW NE, Section 1-43-15w, Punchbowl district, Washington County, has resumed at 690 feet in a 15-inch hole under a contract with W. A. Ghagan to go to 4,500 feet with a 15-inch hole at 2,500 feet.

IDAHO

Mountain States Oil & Gas Co. and Crystal Dome Oil & Gas Co., in their joint operation of the Crystal Dome, in Payette County, are installing rotary equipment for a second well on the structure. Their No. 1 Daniels, SW SW, Section 32-10n-4w, which came in as a gas well at 1,865 feet the past summer, has been shut in. Grand Teton Oil Co.'s No. 1 Blevins, Section 33-5n-44, Teton County, is shut down at 3,304 feet waiting for installation of rotary equipment. The rig was on the ground but erection was delayed by a storm and it may be necessary to shut down for the winter. Same company's No. 1 Bevan, Section 28-5-44, is shut down waiting for completion of No. 1 Blevins. Idaho Natural Gas Co.'s No. 3 Norton, Section 13-10-36, Bannock County, is shut down to complete acreage deals.

Rocky Mountain Production

Average daily runs from fields week ending December 13:

WYOMING	
Salt Creek	28,780
Big Muddy	2,030
Grass Creek	2,140
Elk Basin	680
Dallas	280
Frannie	930
Hudson	210
Lovell	10
Teapot	20
Warm Springs	100
Rock River	2,150
Lance Creek	220
LaBarge	1,550
Poison Spider	390
Oregon Basin	3,350
Osage	1,000
Ferris	10
Byron	10
Lost Soldier	4,400
Simpson Ridge	50
Dutton Creek	160
Total Wyoming	48,470
MONTANA	
Cat Creek	1,130
Lake Basin	50
Kevin-Sunburst	4,070
Pondera	1,670
Border	350
Total Montana	7,270
COLORADO	
Florence	506
Moffat	940
Fort Collins	1,150
Iles Dome	1,050
Rangley	50
Tow Creek	370
Boulder	25
Total Colorado	4,091
NEW MEXICO	
Rattlesnake	959
Hogback	460
Table Mesa	84
Artesia	604
Cap Rock	368
Getty	155
Hobbs	31,719
Jal	1,294
Lea	3,568
Eunice	1,864
Texas Pacific area	257
Total New Mexico	41,323
Total Rocky Mountain	101,154
Total previous week	101,435
Difference	281

SOUTHEASTERN OHIO ASSOCIATION MEETS

LOGAN, Ohio, Dec. 13.—The annual meeting of the Southeastern Ohio Oil and Gas Producers Association was held in Logan, Ohio, Thursday afternoon. Many matters of importance to producers were considered and acted upon. Two resolutions were offered and adopted by the association. The first was relative to the present basis for county taxation, and provided for a letter to be sent to each county auditor in southeastern Ohio requesting a new barrel valuation based on the present price of crude in lieu of valuation established when crude was selling around $4. The second resolution, offered by W. E. Burns of Marietta, covered the question of a tariff on crude oil. The association went on record as favoring a tariff and passed a resolution requesting Congress and the President of the United States to take such action as will protect the petroleum industry of the United States.

During the recess many visited the office of the new refinery project. Plans, specifications and financial set-up were explained. Much enthusiasm was evidenced by those present, a large number voicing the sentiment that the refinery in southeastern Ohio was going to be the salvation of the oil industry in this section.

The evening was spent in short talks on the various phases of the oil industry —curtailment, refinery, cause and relief from the present $1.45 price for Pennsylvania crude, the lowest price for over 12 years. The price situation was, of course, the main subject. Many expressed themselves as feeling that the present price of crude was most unfair and unjust, causing a loss to the producer and not in keeping with the value of the crude oil.

A. E. Faine, a member of the Southeastern Ohio Conservation Board, urged the producers to join in the conservation plans now being used to adjust the overproduction. These plans were for the immediate relief but, as he stated, the relief needed was the establishment of the value and merit of Pennsylvania refined products, thereby creating a bigger demand for 100 per cent pure Pennsylvania products. Mr. Faine's idea was that special stress along these lines should be made in Ohio, Pennsylvania, New York and West Virginia, the area in which this crude is mined and which ranges second to none in population, wealth, factories, automobiles and trucks.

In connection with local advertising, the association went on record as favoring such a plan and agreed to co-operate with the Pennsylvania Grade Crude Association in plans now being considered to place a large number of tire covers with a special 100 per cent design in the Pennsylvania crude district.

Albert B. Craig of the Freedom Oil Works gave a short talk on the refining end, touching on the various factors and phases of this industry, such as crude supply, demand for cold test lubricants, marketing, etc.

H. D. Atha, chairman of the Southeastern Ohio Conservation Board, gave a report of the several meetings held in Pittsburgh and urged the co-operation of every producer in this movement.

The report of the secretary and treasurer, W. L. Franks, was made, showing the addition of many new members.

The retiring president, E. J. Mildrem, closed the meeting, thanking all for their loyal support, and extending best wishes to the new officers. The following officers and directors were elected: President, I. C. Grimm, Woodsfield, Ohio; vice president, H. B. Goddard, Marietta, Ohio; vice president, Charles Hammond, Columbus, Ohio; secretary and treasurer, W. L. Franks, Logan, Ohio.

The board of directors included these officers and the following: A. D. Hufford, Bremen, Ohio; H. D. Atha, Logan, Ohio; B. A. Holl, Logan, Ohio; C. H. Bell, Logan, Ohio; A. E. Faine, New Straitsville, Ohio; E. J. Mildrem, Marietta, Ohio; F. W. Douglas, Woodsfield, Ohio; W. R. Crowley, Roseville, Ohio.

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Type B Regan Crown Block, shown here in combination with Type 3B Traveling Block, permits *top speed* when running casing, pipe or tubing. Designed originally for Mid-Continent service, Type B has won such outstanding approval that it is now being adopted in deep fields in California and overseas.

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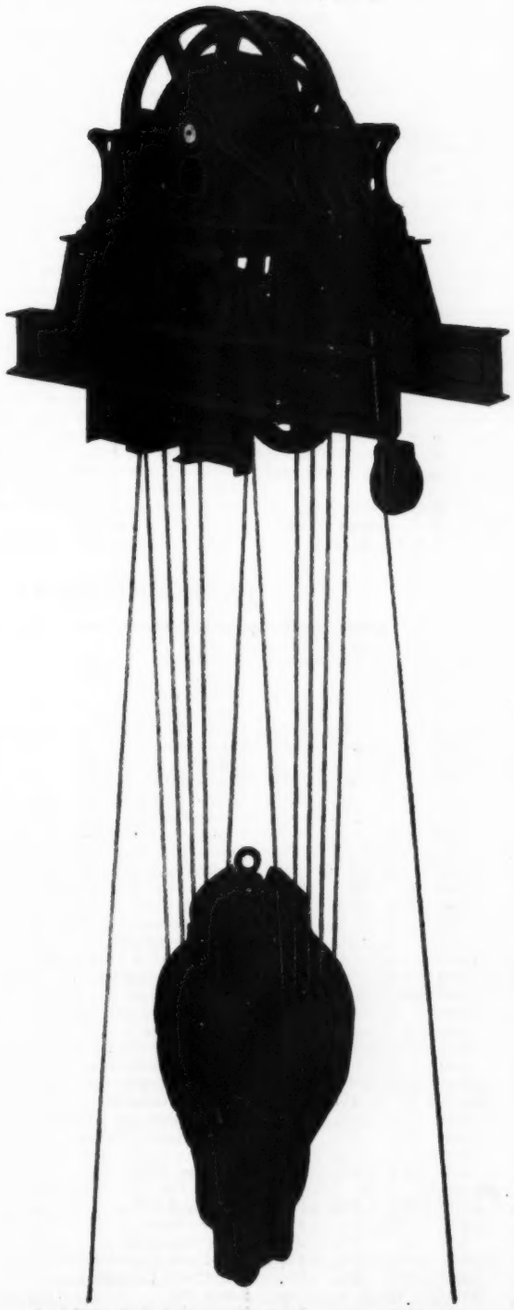


Type B 6-sheave Crown Block and Type 3B 5-sheave Traveling Block with 10-line string-up.

New York President Sees Progress

Believes Stockholders and Public Will Not Regret Co-operation and Patience Shown. World Co-operation Needed

C. F. Meyer, president of Standard Oil Co. of New York, interviewed at San Francisco, Calif., after a tour of the oil fields of the country, said:

"I cannot help but feel that the oil industry is progressing toward a definitely improved and profitable condition and that, given more time, stockholders and the public generally will not regret the co-operation and patience shown the industry during its present trying time."

Difficulties now being experienced seem big and at times almost insurmountable and progress is hardly discernible, he said, but when a view of the steps taken by the industry during the last few years is taken, it can readily be seen that real betterment is in progress.

Regarding the Government's suit against the merger of his company and Vacuum Oil Co., Mr. Meyer said that "one man's guess is as good as another's, but some people expect the decision the first part of this month. The present price of the shares in the open market does not support this contention, however."

Returning to the world situation, he said:

"Of course, the United States, now as in the past, is the crux of the oil conservation movement, but we must not overlook the remainder of the world, which in time will assume a far more important place in the oil industry. Without the co-operation of world interests conservation in the United States will be only partially successful.

"At present, however, there does not appear any serious obstacle to world agreement among the oil interests as Russia is about the only uncertain factor, and undoubtedly a solution will be found for this problem."

Before the war Russia's maximum oil production amounted to around 85,000,000 bbls. a year and if the Soviet's five-year policy is adhered to production this year will be 115,000,000 bbls. and next year will be stepped up to around 125,000,000 bbls.

Standard of California

Standard Oil Co. of California in its statement to the New York Stock Exchange in connection with listing of 256,920 additional shares of no-par capital stock, to provide for the 2 per cent stock dividend payable December 15, traces development in Kettleman Hills oil field of California. The company states it is estimated that the field, in which it holds fee ownership of one-half the acreage, will produce in excess of 100,000 bbls. of oil an acre.

Productive sands of the field have been indicated as extending some 11 miles over the structure. In the north dome, 6,000 acres of the company's land has been proven, and in addition it has large acreage in the middle dome, holding alternate sections in the whole Kettleman area. The Kettleman holdings are carried on the books of the Standard of California at only $7 an acre.

The company's 68-mile oil pipe line from Kettleman Hills Field to Estero Bay, San Luis Obispo County, has present capacity of 22,000 bbls. of crude daily but this is capable of being increased to 60,000 bbls. a day. Tankers are loaded at the coast end of the line. The company is supplying 78,000,000 feet of natural gas a day from Kettleman Hills and other California fields for distributors in northern California. A welded gas line 200 miles long has been constructed from Kettleman to San Francisco Bay district, with ultimate capacity of 200,000,000 feet daily, by Pacific Gas & Electric Co. and Pacific Public Service Co., the latter controlled by California Standard.

The company has withdrawn from Argentina. Additional acreage has been acquired in Colombia, Mexico, Venezuela, but acreage in Ecuador has been surrendered.

Statement of Standard Oil Co. of California and all wholly-owned subsidiaries as of September 30, 1930, shows total assets of $612,440,894, compared with $604,724,492 on December 31, 1929, and total surplus $259,638,097, against $253,389,103. Current assets totaled $107,677,317 and current liabilities $12,942,774 as contrasted with $114,273,684 and $12,032,888, respectively, on December 31, 1929.

Skelly Oil

Skelly Oil Co. has declared the regular quarterly dividend of 1½ per cent amounting to $1.50 per share on the outstanding 6 per cent cumulative preferred stock of the company payable February 2, 1931, to preferred stockholders of record at the close of business January 2, 1931.

Sun Oil

The 127,557 shares of Sun Oil Co. no-par common stock approved for listing by the New York Stock Exchange are for the payment of a 9 per cent dividend recently declared by the company. This dividend is payable December 15, to stock of record November 25.

Indiana Pipe Line

Indiana Pipe Line Co. omitted the usual extra dividend of 25 cents, but declared the regular quarterly dividend of 50 cents on the $10 par capital stock, payable February 14 to stock of record January 23.

Sunray Oil

Sunray Oil Co. has declared a stock dividend of 5 per cent on the common stock, payable January 15 to stock of record December 20.

The 5 per cent dividend declared by Sunray Oil Corp., payable January 15 to stock of record December 20, is in lieu of the quarterly cash payment of 10 cents which has been omitted.

Twenty Representative Stocks

The Oil and Gas Journal's weekly average price of 20 representative petroleum stocks listed on the New York Stock Exchange and New York Curb, based on closing quotations for Wednesday, was as follows:

May 7	50.23	Aug. 27	42.83
May 14	51.67	Sept. 3	42.71
May 21	49.71	Sept. 10	42.84
May 28	50.98	Sept. 17	42.43
June 4	50.94	Sept. 24	40.62
June 11	46.65	Oct. 1	37.78
June 18	41.41	Oct. 8	35.85
June 25	42.37	Oct. 15	35.21
July 2	44.13	Oct. 22	31.88
July 9	44.11	Oct. 29	32.80
July 16	46.42	Nov. 5	31.77
July 23	46.06	Nov. 12	30.18
July 30	44.89	Nov. 19	31.54
Aug. 6	45.24	Nov. 26	30.86
Aug. 13	43.53	Dec. 3	30.53
Aug. 20	43.79	Dec. 10	28.57

Indian Refining

The annual meeting of Indian Refining Co. has been postponed to January 22 for lack of a quorum. Previously the meeting had been adjourned from November 12 to December 11

The committee consisting of J. G. Robinson, W. A. Scott and H. R. Hargis, organized to represent stockholders of Indian Refining Co. in opposition to acceptance of the offer of The Texas Corporation for acquisition of the company, states that as of the close of business December 6 about 150,000 shares of Indian Refining common had been deposited with Guaranty Trust Co. of New York in response to the offer.

The Texas Corporation's offer to exchange one share for each eight shares of Indian Refining common expired December 15. Under the offer The Texas Corporation is bound to accept if 75 per cent of the Indian common stock is deposited and has the right to accept if 51 per cent

INDEPENDENT OILS ON NEW YORK CURB

Quotations Compiled by Francis, Bro. & Co., Associate Members of New York Curb, Kennedy Building, Tulsa, Okla.

1930 High	1930 Low	For week ended Dec. 10 Sales	High	Low	Close	Stocks—		Outstanding capital	Par value	Div. rate	Last paid	1927 High	1927 Low	1928 High	1928 Low	1929 High	1929 Low
4½	⅝	800	¾	¾	¾	American Maracaibo	(sh)	700,000	N.P.	....	.....	7½	2¾	9½	3½	8⅝	1⅛
21	13½	500	13⅞	13½	13½	British American		1,311,321	N.P.	20c	10- 1-30	40	20½	55	32¾	62	7⅞
2¾	¾	500	1	1	1	Carib Syndicate		$131,250	25c	....	.....	28¼	15½	4½	3⅞	4⅞	1
44¼	16	39,600	17⅞	16⅝	17½	Cities Service	(sh)	24,290,359	N.P.	30cA†	12- 1-30	58¾	40½	90⅞	54	68⅛	20
93⅞	87⅛	200	88⅝	88¼	88¼	Cities Service pfd.	(sh)	1,500,000	N.P.	50cM	12- 1-30	95⅝	87	103½	94½	98¾	84
¾	⅛	1,600	⅛	⅛	⅛	Colombia Syndicate		$2,000,000	$1	....	.....	3⅞	1⅛	3¼	.76	2	½
5⅞	2½	100	2½	2½	2½	Consolidated Royal		$5,000,000	$10	12½cQ	10-25-30	9¾	6⅜	8⅞	6¼	11⅛	2½
7⅝	3⅝	1,800	3¾	3¾	3¾	Creole Petroleum	(sh)	5,977,873	N.P.	....	.....	14⅞	9½	17½	9½	11¾	5⅝
1	¼	300	¾	¾	¾	Crown Central	(sh)	587,000	N.P.	....	.....	3	.50	3¼	.76	2½	¼
1	¾	200	¾	¾	¾	Crown Central (new)		.....	...	....	.....	..	..	..	..	..	..
21¾	4¾	400	4¾	4¾	4¾	Darby Petroleum (new)		1,019,392	N.P.	25cQ	10-15-30	12	4	33½	3¼	26	6½
11	3½	300	3¼	3¼	3¼	Derby Oil & Refining	(sh)	500,000	N.P.	....	.....	2½	74	2¼	1	11	2
60	30	100	35	35	35	Derby Oil & Refining pfd.		48,500	N.P.	....	.....	16¾	4	21⅛	7½	44	20¾
166⅞	66⅝	7,900	70⅝	66⅝	68	Gulf Oil Corp.	(sh)	4,504,921	$25	37½cQ	10- 1-30	118	96¼	165	101⅛	209	115
1⅜	⅝	7,700	⅝	⅝	⅝	Intercontinental Petroleum		$5,682,000	$5	....	.....	2½	.80	3⅜	1	2⅞	⅜
3	1⅛	200	1¼	1⅛	1¼	Kirby Petroleum	(sh)	750,000	N.P.	....	.....	2¼	1⅛	3	1¼	3⅝	1¼
4¾	½	1,000	⅝	⅝	⅝	Leonard Oil & Development		$50,000,000	$25	....	.....	10⅞	5⅛	9⅜	5⅛	6⅛	1
29	6¼	200	7½	7½	7½	Lion Oil & Refining	(sh)	250,000	N.P.	50cQ	10-27-30	27½	20	43⅞	20	38⅞	18
55⅞	20⅛	500	23⅝	23⅝	23⅝	Lone Star Gas	(sh)	5,000,000	N.P.	25cQ	9-30-30	59⅜	37	69⅛	48½	67⅞	28
½	⅛	100	⅛	⅛	⅛	Magdalena Syndicate	(sh)	850.000	$1	....	.....	2⅞	.80	1⅞	.50	1¼	¼
16	3	100	4	4	4	Margay Oils		160.000	N.P.	....	7-10-30	52	12	48½	32	38½	14
7½	1¾	200	1¾	1¾	1¾	Mexico-Ohio Oil Co.		500.000	N.P.	....	.....	12⅛	5	8	2¾	6⅜	2¼
¾	⅜	200	⅜	⅜	⅜	Mountain & Gulf		$4,000.000	$1	2cQ	10-15-30	1½	1	1¾	.76	1½	¼
12⅛	5⅜	1,000	5¾	5⅜	5⅜	Mountain Producers		$1,682,182	$10	40cQ	10- 1-30	29¼	22¾	28⅞	19½	22⅞	7
3½	1⅝	1,500	2	1⅝	1⅝	New Bradford Oil		$1,095,201	$5	12½cQ	10-15-30	5⅞	4⅝	5⅝	4¼	5	2½
7¼	1½	200	1⅝	1½	1½	New Mexico and Arizona		$1,000.000	$1	....	.....	16	9¼	11⅞	7⅛	9⅜	2¼
11¼	3	300	3½	3¼	3¼	North Central Texas	(sh)	400.000	N.P.	15cQ	9- 2-30	12¾	9½	14¼	8½	18½	6⅛
2½	¼	400	¼	¼	¼	Pandem	(sh)	489.875	N.P.	....	.....	9⅜	3¼	6	2½	3½	½
4⅜	1¼	700	1⅜	1¼	1¼	Pantepec Oil	(sh)	1,506.000	N.P.	....	.....	12⅛	7	15⅝	8½	10½	1⅞
..	..	No sales.				Pennok Oil		150.000	N.P.	....	.....	12½	5⅛	7¾	4⅞	7¾	4⅜
10½	3½	100	3½	3½	3½	Red Bank Oil	(sh)	250.000	N.P.	....	.....	24⅜	7	18	4⅞	16	9⅝
5⅜	1⅛	200	1¼	1¼	1¼	Reiter-Foster	(sh)	388.584	N.P.	....	12- 2-29	15½	3½	12⅞	4½	8½	1⅛
8⅝	2	500	3	2½	2½	Ryan Consolidated	(sh)	500.000	N.P.	....	.....	7	4½	12	4⅛	11	3
2½	1⅜	300	1¾	1¾	1¾	Salt Creek Consolidated	(sh)	1,286.300	$10	10cQ	10- 1-30	8	5¼	7¼	5½	5⅞	1⅞
15¼	5¼	700	6½	6½	6½	Salt Creek Producers	(sh)	1,496.859	$10	50cQ	11- 1-30	35½	27¼	35	23⅛	25⅞	9
1	½	100	½	½	½	Savoy Oil		$750.000	$5	....	.....	7	1¼	3½	1	2½	⅜
4½	1	400	1⅛	1	1⅛	Venezuelan Petroleum	(sh)	755.090	$5	....	2-15-30	7⅜	4¼	9⅛	4¾	6½	1¾
5	2	100	2	2	2	Woodley Petroleum		$500.000	$1	....	3-31-29	7	4¾	8¼	4⅞	9½	2
2½	⅜	900	½	½	½	Y Oil & Gas		100,000	N.P.	....	.....	6	1¾	8⅜	2⅛	2⅞	¼

*Including one-half per cent monthly in stock. †Payable monthly and a monthly stock dividend of one-half per cent. x Ex-dividend.

or more is deposited. There were 1,270,122 shares of the $10 par common outstanding September 30.

The Robinson committee states that if The Texas Corporation's offer is refused by stockholders, required financing for Indian Refining Co. can be arranged. In the event The Texas Corporation acquires control, the committee states that "the stockholder who refuses to exchange his stock will still own it, and there is no reason to suspect that his investment would suffer more under the Texas management of Indian Refining Co. than by the exchange of his stock under the present offer."

WEST TEXAS GEOLOGISTS

FORT WORTH, Tex., Dec. 15.—R. L. Cannon, consulting geologist, San Angelo, Tex., was named president of the West Texas Geological Society at its December meeting. Mr. Cannon has been secretary-treasurer for the past year. John Emery Adams, district paleontologist for the California Co., Midland, Tex., was elected vice president, succeeding Georges Vorbe, district geologist for the Texas Pacific Coal & Oil Co. at Midland, and H. A. Hemphill, geologist with the board for the lease of university lands, San Angelo, was elected secretary-treasurer.

STANDARD OIL STOCKS ON NEW YORK CURB

Quotations Compiled by Francis, Bro. & Co., Associate Members of New York Curb, Kennedy Building, Tulsa, Okla.

1930 High	1930 Low	For week ended Dec. 10 Sales	High	Low	Close	Stocks—		Outstanding capital	Par value	Div. rate	Last paid	1927 High	1927 Low	1928 High	1928 Low	1929 High	1929 Low
1	⅜	400	⅜	⅜	⅜	Atlantic Lobos		499,448	N.P.	....	.....	..	..	..	..	..	..
25	11¼	100	12⅞	12⅞	12⅞	Borne Scrymser		$1,000,000	$25	$1SA	10-15-30	59	50	56½	44½	46½	25
69	43	100	43	43	43	Buckeye Pipe Line		$10,000,000	$50	$1Q	12-15-30	60	45	76	53	74½	55
184⅞	100¼	100	116	116	116	Chesebrough Mfg.		$3,000,000	$25	$1Q*	10-30-30	126	76½	161	117	210	130
65¾	22	200	22	22	22	Cumberland Pipe Line		$1,500,000	$50	$1Q	12-15-30	137	89	114	67	75¾	40
54¾	28¼	250	30⅛	28¼	30	Eureka Pipe Line		$5,000,000	$100	$1Q	11- 1-30	68½	47	88	64⅛	70½	42
7	2½	100	3	3	3	Galena Signal Oil		$16,000,000	$100	....	.....	13½	3½	13	4¼	6½	3
119	66¼	2,600	67⅜	66½	67⅜	Humble Oil & Refining		$74,103,300	$25	50cQ‡	10- 1-30	68½	54	114¾	59½	128	74⅛
320	303	100	310	310	310	Illinois Pipe Line		$20,000,000	$100	$4.50	12-15-30	182	123¾	290½	176½	340½	260
30	15⅞	2,500	17	16½	16½	Imperial Oil of Canada (new)	(sh)	26,421,768	N.P.	12½cQ	12- 1-30	64⅝	37¾	104	56¾	41	22
41	17	200	19⅞	17	17	Indiana Pipe Line (new)		$3,000,000	$10	50cQ‡	11-15-30	94½	61	91⅞	74⅜	41⅞	26
24	13⅜	2,700	14¾	14¼	14½	International Petroleum (new)	(sh)	14,247,088	N.P.	12½cQ‡	12-15-30	29	28¼	55	35	30⅜	15
22⅜	13	300	13⅝	13½	13½	National Transit		$6,362,500	$12.50	25cQ‡	12-15-30	24	13½	32⅜	19⅜	25½	10⅛
21⅜	10⅛	300	15	12¾	15	New York Transit		$1,000,000	$10	40cQ†	9-15-30	44½	31¼	75	38½	17½	10
54	26½	100	30	30	30	Northern Pipe Line		$2,000,000	$50	$2SA	7- 1-30	100	70	69	56½	63	41
32	15¾	9,700	16	16	16	Penn Mex Fuel		$10,000,000	$25	$1	12-15-30	39	12	84	28	44½	20
33	6⅞	100	6⅞	6⅞	6⅞	Solar Refining		$4,000,000	$25	....	12-20-29	..	..	..	..	50	29
20⅞	8¾	500	10	9⅞	10	Southern Pipe Line		$1,000,000	$10	5cQ	12- 1-30	27¼	15½	19	15	22½	13
45⅞	19½	500	21	20¼	20½	South Penn Oil		$30,000,000	$25	50cQ	9-30-30	41½	35	71⅞	36¾	60¼	35⅛
64	32½	50	34	34	34	Southwest Pennsylvania Pipe Lines		$1,750,000	$50	$1Q	1-10-29	83	55½	102	70	70	60
59⅞	35⅛	11,600	36¼	36	36	Standard Oil of Indiana		$348,175,069	$25	62½cQ‡	12-15-30	81½	64⅜	95⅞	70⅞	63	45
40½	20⅛	3,700	22	21⅜	21⅞	Standard Oil of Kentucky		$25,654,516	$10	40cQ	9-30-30	130	111½	179¾	122¼	46⅞	29
48⅞	35¼	200	37½	37½	37½	Standard Oil of Nebraska		$4,640,225	$25	62½cQ‡	9-20-30	49½	40	54⅞	39⅞	50¼	40
108½	44	100	48½	44	44	Standard Oil of Ohio		$14,000,000	$25	62½cQ	10- 1-30	87½	72	134	71	129	60
10	4	600	5	5	5	Swan-Finch Co.		$861,466	$25	43¾cQ	12- 1-30	21	14½	23½	16	18	10
97⅞	59⅛	3,400	62¾	61⅛	61¾	Vacuum Oil Co.		$126,180,350	$25	$1Q	9-20-30	..	..	111	72	133¾	75

*Plus 50 cents extra. †Plus 10 cents extra. ‡Plus 25 cents extra. x Ex-dividend.

TRANSACTIONS IN OIL SHARES ON NEW YORK STOCK EXCHANGE

Quotations Compiled by Francis, Bro. & Co., Members of the New York Stock Exchange and Associate Members of New York Curb, Kennedy Building, Tulsa, Okla.

1930 High	1930 Low	For week ended Dec. 10 Sales	High	Low	Close	Stocks—		Outstanding capital	Par value	Div. rate	Last paid	1927 High	1927 Low	1928 High	1928 Low	1929 High	1929 Low
31½	18	900	20¾	20⅛	20⅛	Amerada Corp.	(sh)	922,075	N.P.	50cQ	10-31-30	37⅝	27⅝	43⅞	27⅛	42⅝	17½
37	7	500	8⅛	7⅝	7⅝	American Republics Corp.	(sh)	209,180	N.P.	....	.....	82½	35⅛	85	51⅛	64⅜	12½
51	30⅞	40	35	35	35	Associated Oil		$57,260,300	$25	50cQ	9-30-30	50¼	35	53¾	37½	47¼	34½
51⅜	18⅝	15,400	19⅞	18¾	19	Atlantic Refining		$66,763,775	$25	25cQ†	12-15-30	131⅜	104	66⅜	50	77⅞	30
34	12⅝	2,800	13⅞	12⅝	12⅝	Barnsdall Corp. A		$56,546,600	$25	50cQ	11- 6-30	35½	20¾	54	20	49⅛	20
30½	10	3,000	11⅞	11⅜	11½	Continental Oil of Delaware	(sh)	4,741,554	N.P.	....	12-15-27	..	..	..	..	47⅛	18
71⅛	28	200	29	28½	28½	General Asphalt	(sh)	413,333	N.P.	75cQ	12-15-30	96¾	65	94⅞	68	94¾	42¼
116⅞	33⅛	3,200	38½	36¼	37¾	Houston Oil		$24,968,600	$100	....	10-17-30	175¾	60⅛	167	79	109	26
11¾	7⅝	4,800	9	8⅛	8¼	Houston Oil (new)	(sh)	998,744	$25	....	.....	..	..	..	..	..	..
28⅜	3¼	4,100	3⅞	3¾	3¾	Indian Refining		$12,565,070	$10	....	.....	12⅛	7⅝	39⅝	9	53	13⅛
12	4⅝	1,200	4⅞	4¾	4¾	Louisiana Oil Refining	(sh)	1,190,063	N.P.	....	.....	18⅛	10	19¾	9⅜	18	7
10⅜	2	1,100	2¾	2⅝	2⅝	Maracaibo Oil	(sh)	330,000	N.P.	....	.....	22¾	12	25½	12½	18½	5⅛
37	9¾	4,100	11⅝	11⅛	11¼	Mexican Seaboard	(sh)	1,244,383	N.P.	....	10- 1-24	9¼	3	72	4⅝	59⅝	8¼
33	14⅞	1,400	14⅞	14⅛	14⅛	Mid-Continent Petroleum	(sh)	1,857,912	N.P.	50cQ	11-15-30	39⅜	25½	44½	25⅛	39⅞	22⅛
32	16⅛	5,000	18⅛	17½	17½	Ohio Oil	(sh)	6,648,052	N.P.	50cQ	12-15-30	67⅞	52	84	58½	79⅞	64¼
64¼	42	100	43	43	43	Pan American P. & T.		$50,084,700	$50	....	12-20-27	65⅞	40⅛	50⅞	38¼	69	40½
67¼	41	400	42	42	42	Pan American P. & T. "B"		$121,110,650	$50	....	12-20-27	66⅜	40¼	58⅞	37¾	69¼	40½
		No sales.				Pan American Western "B"		400,000	N.P.	....	1-30-27	37⅞	16¾	28⅜	15½	18½	13⅝
12¾	1¾	200	2¼	2⅛	2⅛	Panhandle P. & R.	(sh)	199,370	N.P.	....	.....	18⅞	8	21¾	11½	15¼	3
80	47½	100	70	70	70	Panhandle P. & R. pfd.		$2,564,400	$100	....	7- 2-30	83	54	108	70	76	47½
44¾	14⅞	15,365	16⅛	15½	15¾	Phillips Petroleum	(sh)	2,593,075	N.P.	50cQ	10- 2-30	60¼	36¼	53⅞	35¼	47	24¼
2½	⅝	400	⅝	⅝	⅝	Pierce Oil Corp.		$29,622,831	$25	....	.....	1⅛	½	5¼	½	3⅜	1
7⅛	2¼	900	2½	2½	2½	Pierce Petroleum	(sh)	2,500,000	N.P.	10c	11-15-30	5½	2½	7	3½	5⅞	½
54	14½	3,600	14½	14	14¼	Prairie Oil & Gas		$60,848,000	$25	50cQ*	9-30-30	55½	45⅝	68	46	65⅜	40½
60	20½	5,100	22⅜	20½	21	Prairie Pipe Line		$101,250,000	$25	75cQ†	9-30-30	190	130¾	280	172	65	45
11⅞	3	100	3¼	3¼	3¼	Producers & Refiners		$37,438,950	$50	....	9-15-23	33⅞	16¾	29⅞	16	25⅞	4
40	14	20	14	14	14	Producers & Refiners pfd.		$2,845,350	$50	....	5- 4-25	50	36⅞	49⅝	41	46⅜	25½
27¼	10¼	3,600	10½	10¼	10½	Pure Oil		$75,959,250	$25	37½cQ	9- 1-30	33½	25	31⅝	19	30¾	20
9¾	5⅞	2,200	6⅜	6⅛	6⅛	Richfield Oil (new)		$52,410,875	N.P.	....	.....	28⅝	25⅜	56	23	49⅝	20
25⅜	7	900	7⅜	7⅜	7⅜	Rio Grande Oil	(sh)	1,236,270	N.P.	....	10-25-30	..	..	37½	32	42½	15
56½	37⅝	3,000	41⅛	40½	40⅞	Royal Dutch, N. Y.	(sh)	611,303	....	$1.875	8-13-30	54½	44¼	64	44⅝	64	43⅛
48⅜	32	300	32¼	32¼	32¼	Shell Transport & Trading Co.		£23,985,000	£1	$1.45	7-28-30	48⅝	40½	47⅞	41⅜	51½	40⅝
25½	7½	4,700	8¼	8	8¼	Shell Union Oil	(sh)	13,066,497	N.P.	....	6-30-30	31⅜	23⅝	39¼	23¼	31⅜	19
37	6½	500	7⅛	6⅝	6⅝	Simms Petroleum		$8,353,620	$10	40cQ	9-15-30	25⅝	14¼	27¼	18⅛	40⅛	15
32	11⅜	19,900	11⅞	11½	11⅝	Sinclair Consolidated	(sh)	5,500,000	N.P.	25cQ	10-15-30	22¾	15	46¾	17⅜	45	21
112¼	96	100	96	96	96	Sinclair Consolidated pfd.		$16,025,250	$100	$2Q	11-15-30	104½	97	110	102½	111	103
42	10¼	400	11½	11¼	11⅜	Skelly Oil		$27,441,250	$25	50cQ	9-15-30	37⅜	24½	42⅝	25	40½	28
75	47⅞	4,900	49	47⅞	47⅞	Standard of California	(sh)	12,594,098	N.P.	62½cQ	12-15-30	60¾	50⅜	80	63	81⅞	51½
49	17	1,000	18¾	17	17¼	Standard of Kansas		$8,000,000	$25	50cQ	12-15-30	20⅞	14⅝	37¾	15	33¾	18
84⅞	49	35,100	52⅝	50⅝	51⅝	Standard Oil of New Jersey		$634,999,200	$25	25cQ*	12-15-30	41⅜	35½	59⅜	37¾	83	49
40⅜	24⅝	8,100	25	24⅝	24⅞	Standard Oil of New York		$445,223,675	$25	40cQ	12-15-30	34½	19¾	33¼	28¾	48⅛	31¾
70	44½	200	44½	44½	44½	Sun Oil	(sh)	1,416,869	N.P.	25cQ	12-15-30	34⅞	30	77	31½	68⅜	55
9⅜	1⅛	1,200	1¼	1⅛	1⅛	Superior Oil Corp.	(sh)	776,979	N.P.	....	12-20-20	..	..	..	..	24	5¼
60½	35	16,866	36	35	35⅜	The Texas Corp.		$246,204,900	$25	75cQ	10- 1-30	58	45	74¾	50	71⅞	50
14½	5½	900	5⅝	5½	5½	Texas Pacific Coal & Oil Co.		$9,304,890	$10	2½ % A‡	12-31-29	18⅞	12	26⅝	12⅛	23⅞	9½
31	15⅛	200	15½	15½	15½	Tide Water Oil	(sh)	2,191,759	N.P.	20cQ	9-30-30	29⅛	19	41½	19⅝	40	14
94⅞	79½	500	81	79½	79½	Tide Water 5% pfd.	(sh)	19,947,000	N.P.	$1.50Q	12- 1-30	90⅛	85	100⅛	86	97½	85⅛
17¾	7½	2,500	7⅞	7⅝	7⅝	Tide Water Associated	(sh)	5,560,424	N.P.	30cSA	8-15-30	19⅛	15¾	25	14¾	23½	10
89¾	69½	1,000	69½	69½	69½	Tide Water Associated pfd.		$73,284,500	....	$1.50Q	10- 1-30	..	..	..	..	90⅞	74⅛
50	23	4,100	24½	23	23¼	Union Oil of California		$104,342,375	$25	50cQ	11-10-30	56½	39⅝	58	42⅜	57	42⅛
38½	24	400	25	25	25	Union Tank Car	(sh)	1,254,048	$100	40cQ	12- 1-30	127½	94	128⅛	110	163¾	121⅞
27	5⅝	5,400	5⅞	5⅝	5⅝	Warner-Quinlan	(sh)	632,948	N.P.	....	7- 1-30	34½	24½	44⅞	26	42⅞	15
21	9	600	9½	9	9	Wilcox Oil & Gas	(sh)	428,907	N.P.	....	5-10-28	..	..	..	..	29¾	12⅞

*Plus extra dividend of 25 cents. †Plus extra dividend of 50 cents. ‡Payable in stock. x Ex-dividend.
In comparing highs and lows for the several years in the three tables, it will be necessary to take into consideration cases where there have been splits in the stock.

Sincere Greetings of the Season...
from the two "BEST IN THE LONG RUN"

MARATHON OIL COMPANY

TULSA, OKLAHOMA

BEST IN THE LONG RUN

Texas Division of Mid-Continent Body Adopts Resolutions

DALLAS, Tex., Dec. 16.—At the meeting of the Texas division of the Mid-Continent Oil and Gas Association at Dallas today presided over by President W. T. Moore, Simms Oil Co., all the resolutions adopted by the board of directors of the general Mid-Continent Oil and Gas Association at its annual meeting in Dallas last week were adopted by the Texas division. Another resolution was passed asking that the Railroad Commission of Texas start immediate procedure to prorate and curtail the Joiner Pool, Rusk County, which is now a major threat.

R. R. Penn, chairman of the central proration committee, dwelt for some time on the Rusk County Pool saying that it "offers new problems not yet faced in Texas due to the pool being cut up into many small tracts largely owned by independent operators and many mail promoters which may cause trouble as they did in Oklahoma City."

Mr. Penn said the Joiner Pool may be expected to be able to produce 50,000 bbls. in 60 days.

A ratable taking law was recommended for Texas and the state legislature will be asked to amend the common purchaser law and put teeth into it to enforce the purchaser to take ratably in all pools from all wells. A resolution was adopted that the legal committees of the various proration committees co-operate in drawing up the ratable taking law to submit to the state legislature for adoption.

All former officers and directors of the association were re-elected with the exception that J. H. Clark, vice president of the Midwest Exploration Co., was elected to succeed Earl Calloway.

KELLY SHANNON STARTED CAREER AS A LAWYER

(Continued from Page 31)

accompaniment to the eerie, unreal scene on the leafy river bank.

Sherman Was Right

The combatants after a while ceased action through sheer exhaustion only to start belaboring each other again when one of them or one of the onlookers made some disparaging remark. For three sweltering hours they whaled away at each other, short periods of rest alternating with exchanges of blows, until each was a panting, bruised, dripping, blood-streaked object bearing only a remote resemblance to the young of the human species. Although thoroughly pummeled in the drawn fight neither had received any serious injury; not, however, because there was lack of zeal or earnest effort on the part of his adversary. Each boy's hide was so slippery from perspiration and blood that many of the blows glanced off, inflicting superficial damage only. Besides that, both had wearied themselves in the first 10 minutes of the fray, with the result that their punches lacked steam after that. They washed off the signs of carnage as well as they could and slunk into their homes by the back way.

Two good mothers were horrified. Each tried to persuade her own boy to ask the other's forgiveness, but the culprits were obdurate. However, the two quickly made up their quarrel and even unto this day they are warmest of friends.

Active in Many Fields

Mr. Shannon has participated in civic, industrial and social activities of Fort Worth. He has been a member of the chamber of commerce from its organization. He is a member of its industrial committee and has served on its executive committee. For six years he was a member of the Fort Worth school board. He is a past president of the Rotary Club. He is a member of the Fort Worth Club and the River Crest Country Club. Mr. Shannon used to play golf with regularity and enthusiasm, if not with skill, but he gave away his clubs six years ago and has not played since. He offered no explanation, but it is hinted that his action resulted from bitterness over his poor scores. He is active in the Natural Gas Department of the American Gas Association and he served as vice president and director of its predecessor, the Natural Gas Association of America, of which he was a member from the year of its organization in 1906. He rarely failed to attend its annual meetings.

Mr. Shannon is fond of sports and watches closely the outcome of contests in football, baseball, horseracing, boxing, etc. He has never known a sick day. To be sure he was kicked in the face by a horse when he was 10 years old and received a permanent dent in the chin, but that—oh, that was nothing.

Fort Worth, home of Mr. and Mrs. Shannon, is also the home of their two children, O. K. Shannon, Jr., an attorney, and Mrs. Charles F. Roeser, whose husband is president of Roeser & Pendleton, an oil company.

NATURAL GASOLINE QUOTATIONS LOWERED

(Continued from Page 28)

ming operation has been unsatisfactory. The heavy fuel oils and gas oil have been relatively low in price in the Mid-Continent for the past three years. In effect, this has meant that refiners have had to expand their cracking operations in order to furnish outlets for this fraction of the crude oil which otherwise would have been thrown on the fuel oil market at ruinous prices. It is not expected that this situation will improve. The expansion of natural gas lines into middle western points assures an additional restriction of the market for heavy fuels and gas oil.

The other angle is the demand for antiknock gasolines. The antiknock properties of motor fuel are constantly increasing in importance in the marketing end and the average refinery operator today is more concerned with meeting the accepted standards in regard to antiknock rating than he is with the distillation range or chemical purity of his products. The time has arrived with many operators when they have to keep their cracking stills operating in order to secure material to blend off with their straight-run gasolines which are low in antiknock value. The necessity of having gasolines high in antiknock rating in blending Ethyl Gasoline is still another angle to this problem. By using their cracked gasoline rather than a straightrun gasoline many refiners are able to save up to 1 cent a gallon in the cost of their Ethyl Gasoline.

So far as natural gasoline is concerned, the operators take the position that it is a by-product from the operation of the wells and will be produced as long as the wet gas is available from the wells. If the refiners don't blend it, it will be thrown on the market at prices which will weaken the entire motor fuel market.

This leaves crude oil to carry the burden of any additional curtailment and due to the reductions which already have been made, sponsors of the program to keep down gasoline stocks during the winter months have not yet been able to work out a plan which will be generally accepted.

Gasoline and Naphtha

The general price ranges on all grades of refinery gasoline which were in effect last week continued at the start of the new week. Some U. S. Motor gasoline is being sold from time to time under the 4-cent low both for immediate delivery and delivery over the remainder of the month. However, these sales are the exception and the bulk of the spot movement is from 4 to 5 cents.

The lowest prices come from the refiners who do not have sufficient regular outlets to take care of their output and they are forced to dispose of their surplus to jobbers who are constantly seeking the lowest quotations. A large part of this business is handled through brokers.

The low on the remaining crudes can be obtained by adding one-fourth cent starting at the 4-cent price for U. S. Motor for each of the 400, 390 and 375 endpoint grades. There is fair demand for 400 to 420 endpoint grades but the 390 and 375 are slow. The low prices for natural gasoline have weakened the position of the 350 and 360 endpoint material.

Other Products

Buyers and sellers agreed the first of the week that there had been no important changes in the kerosene, furnace oils, gas oil and the list of lubricating oils and wax. The price on 41-43 water white kerosene has been reduced to a low of 3 cents. Kerosene has been available at this low since the first of the month but the volume meeting the best specifications was small. The past week saw two or three refiners making the best grade reduce their price to the 3-cent level and it is now accepted as the low of the market. Several refiners reported an improved movement on kerosene but they had not advanced their prices.

Predictions are heard that the bright stock market will be in better shape after the first of the year. New contracts, it is said, will absorb most of the output and there will be less material thrown on the spot market. Wax prices are unchanged.

Will Seek New Market For "Distressed" Oil in Old Settled Fields

Over 300 owners of small wells in Oklahoma and Kansas, whose properties will be disconnected by the Prairie Pipe Line Co. on December 31, which will leave them without a market for about 30,000 bbls. of crude oil per day, met Tuesday afternoon in Tulsa to go over their situation and endeavor to find a way out of it.

A committee consisting of E. B. Lawson of Tulsa, chairman; C. G. Peters of Tulsa, J. Wood Glass of Nowata, G. W. Ellis of Bartlesville and J. B. Milam of Chelsea, representing, respectively, Tulsa, Osage, Nowata, Washington and Rogers Counties, were appointed on a committee the duty of which will be to gather statistics as to production; to confer with officials of the Prairie Oil & Gas Co. and Prairie Pipe Line Co. as to use of the Prairie gathering system, and to find one or more buyers for the crude that will be "distressed" on January 1.

A. T. Melcher, geologist, estimated that the acreage represented by the total number of wells to be disconnected is capable of producing 105,000,000 bbls. under pressure, and that it cannot be exhausted in much less than 20 years. This statement affects not only the shallow wells in the northern part of the State, but all the wells to be disconnected from the Prairie's lines.

Speakers including G. W. Ellis, E. B. Lawson, J. B. Milam, A. M. Landon and others were of the opinion that the large possible recovery from the northern pools of the State was well worth saving and in their opinion buyers for the oil can be found if the oil can be delivered.

On a resolution by A. M. Landon a telegram was ordered sent to President Hoover apprising him of the fact that a distressing condition had been thrust upon a large body of producers and workmen and petitioning his good offices for some relief that will make possible the saving of a vast volume of oil.

The Oklahoma Corporation Commission was commended for its work in curtailing the production of crude oil in the State.

LONG BEACH GAS CASE

LOS ANGELES, Dec. 13.—Judge Crawford, sitting in Superior Court at Long Beach on Wednesday, overruled demurrers and denied motions of the state attorneys in the action against Long Beach oil operators for alleged waste of gas. Judge Crawford previously had denied the state's application for a preliminary injunction against gas wastage. No date has yet been set for hearings on applications for a permanent injunction.

BELL OPENS OFFICE

CHICAGO, Dec. 16.—The Bell Oil & Gas Co. of Tulsa will open a Chicago office under the management of Harry T. Bayard, formerly of the Ennis Bayard Co.

Old Timer Says—

"Can you clean out your well without removing your stuffing box casing head?

It's a simple matter with a PARMACO Combination Stuffing Box Casing Head."

Write for Catalog

PARKERSBURG MACHINE CO.

PARKERSBURG, W. VA.

The House of Courteous Service

REFINERY AND CRUDE PRICES

Quotations on refined products are for interstate or export movement unless otherwise noted.

GASOLINE AND NAPHTHA

OKLAHOMA (Group 3)—	Dec. 16		Dec. 9		Dec. 2	
50-52 450 endpoint	.04¼		.04¼		.04¼	.04½
56-58 450 endpoint	.04		.04	.04¼	.04¼	.04½
*58-60 437 endpoint (U. S. Motor)	†.04	.05	.0488		.0498	
*60-62 437 endpoint	†.04¼	.05¼	†.04¾	.05	†.04¾	.05¼
*60-62 400 endpoint	.055		†.05¼	.05½	†.05¼	.05½
*64-66 375 endpoint	†.04¾	.05½	.065		.065	
68-70 360 endpoint	.05¼	.05¾	.05½	.05¾	.05½	.05¾
64-66 437 endpoint (blend)	.04¼	.04¾	.04¼	.04½	.04¾	.05¼
NORTH TEXAS—						
50-52 450 endpoint	.04		.04		.04¼	.04½
58-60 450 endpoint	.04		.04		.04⅛	.04½
58-60 437 endpoint (U. S. Motor)	.04	.04½	.04	.04½	.04¼	.04½
60-62 400 endpoint	.04⅝	.04½	.04¼	.04½	.04⅝	.04¾
64-66 390 endpoint	.04⅝	.04¾	.04⅝	.04¾	.04¾	.05
64-66 375 endpoint	.04¾	.05	.04¾	.05	.05⅛	.05½
68-70 360 endpoint	.05½		.05½		.05¾	.06
64-66 437 endpoint (blend)	.04¼	.04½	.04¼	.04½	.04½	.04¾
*NORTH LOUISIANA—						
58-60 437 endpoint (U. S. Motor)	.05	.05¼	.05¼	.05½	.05¾	.06¼
*ARKANSAS—						
58-60 437 endpoint (U. S. Motor)	.04¾	.05¼	.05	.05¼	.05¾	.06¼
PENNSYLVANIA—						
52-54 Naphtha	.06¼		.06¼		.06½	
54-56 Naphtha	.06½		.06½		.06½	
58-60 Gasoline	.06½		.06½		.06½	
60 Gasoline	.06¾		.06¾		.06¾	
62 Gasoline	.07		.07		.07	
64 Gasoline	.07¼		.07¼		.07¼	
68-70 350 endpoint gasoline	.08	.08½	.08	.08½	.08	.08½
CALIFORNIA—						
†54-58 437 endpoint (U. S. Motor) domestic	.06½	.09½	.07½	.11	.07½	.11
†58-62 400 endpoint domestic gasoline	.08¾	.10	.09	.11	.09	.11
CHICAGO DISTRICT (Based on Group 3)—						
50-52 450 endpoint (Naphtha)	.04¼	.04¾	.04½	.04¾	.04½	.04¾
56-58 450 endpoint	.04½	.04⅝	.04¼	.04½	.04⅝	.04⅝
58-60 437 endpoint (U. S. Motor)	.04½	.04⅝	.04¼	.04¾	.04⅝	.04¾
60-62 400 endpoint	.04¼	.04¾	.04½	.05	.04⅝	.05
64-66 375 endpoint	.05	.05½	.05¼	.05¾	.05½	.06
64-66 437 endpoint (blend)	.04⅛	.04⅝	.04¼	.04¾	.04½	.05
68-70 360 endpoint	.05¼	.05¾	.05¾	.06	.06	.06¼
GULF COAST (Export)—						
58-60 U. S. Motor	.05⅛	.05¼	.05¼	.05½	.05½	.05¾
60-62 400 endpoint	.05½		.05¾	.06¼	.06	.06½
61-63 390 endpoint	.05¾		.06	.06¼	.06¼	.06⅜
64-66 375 endpoint	.06		.06¼	.06½	.06½	.06¾

*Weighted average prices December 15, 8 and 1 as reported by representative refiners. Sales to jobbers only. †No sales reported. Prices show general market.

*Louisiana, Arkansas, Mississippi and East Texas delivery. †For local consumption.

NATURAL GASOLINE

OKLAHOMA (Group 3)—	Dec. 16		Dec. 9		Dec. 2	
Grade A, 72-79.9, 375 e.p., rec. 90%	.03¾		.04	.04¼	.04¼	.04½
Grade AA, 80-87.9, 375 e.p., rec. 90%	.03¼	.03½	.03⅞	.04	.04	
Grade B, 76-83.9, 375 e.p., rec. 85%	.03¼		.03⅝	.03¾	.03¾	.04
Grade BB, 84-92, 375 e.p., rec. 85%	.03	.03¼	.03½	.03¾	.03¾	
Grade C, 80-92, 375 e.p., rec. 78%	.03	.03¼	.03½		.03¾	
NORTH TEXAS—						
Grade A, 72-79.9, 375 e.p., rec. 90%	.03¾		.04	.04¼	.04¼	.04½
Grade AA, 80-87.9, 375 e.p., rec. 90%	.03¼	.03½	.03⅞	.04	.04	
Grade B, 76-83.9, 375 e.p., rec. 85%	.03¼		.03⅝	.03¾	.03¾	.04
Grade BB, 84-92, 375 e.p., rec. 85%	.03	.03¼	.03⅝		.03¾	
Grade C, 80-92, 375 e.p., rec. 78%	.03	.03¼	.03½		.03¾	
NORTH LOUISIANA—						
Grade AA, 80-87, 375 e.p., rec. 90%	.04		.04¼		.04½	
Grade BB, 84-92, 375 e.p., rec. 85%	.03½		.04		.04	
Grade C, 80-92, 375 e.p., rec. 78%	.03¼		.03¾		.04	
CALIFORNIA—						
75-78 375-390 endpoint	.05¾	.06½	.06	.07¼	.06¼	.07¼
CHICAGO DISTRICT (Based on Group 3)—						
Grade A, 72-79.9, 375 e.p., rec. 90%	.03¾		.04	.04¼	.04¼	
Grade AA, 80-87.9, 375 e.p., rec. 90%	.03¼	.03½	.03⅞	.04	.04	
Grade BB, 84-92, 375 e.p., rec. 85%	.03		.03⅝	.03¾	.03¾	

*Louisiana, Arkansas, Mississippi and East Texas delivery.

BURNING OIL

OKLAHOMA (Group 3)—	Dec. 16		Dec. 9		Dec. 2	
41-43 water white kerosene	.03	.03¼	.03⅛	.03½	.03⅛	.03¾
42-44 water white kerosene	.03¼	.03¾	.03¼	.03¾	.03¼	.03¾
NORTH TEXAS—						
41-43 water white kerosene	.03	.03¼	.03	.03¼	.03	.03¼
40-41 water white kerosene	.02⅞	.03	.02⅞	.03	.02⅞	.03
*NORTH LOUISIANA—						
41-43 water white kerosene	.03¾	.04¼	.03¾	.04	.04¼	.04⅜
*ARKANSAS—						
41-43 water white kerosene	.03¾	.04¼	.03¾	.04	.04¼	
PENNSYLVANIA—						
43 Kerosene prime white	.05		.04⅞		.04⅞	
45 Kerosene water white	.05¼		.05	.05¼	.05	.05¼
46 Kerosene water white	.05½		.05¼	.05½	.05¼	.05½
CALIFORNIA—						
38-40 water white Kero. (high burning test)	.05	.06	.05	.06	.05	.06
CHICAGO DISTRICT (Based on Group 3)—						
41-43 water white kerosene	.03	.03¼	.03	.03¼	.03	.03¼
42-44 water white kerosene	.03¼	.03½	.03¼	.03½	.03¼	.03½
GULF COAST (Export)—						
41-43 prime white	.04¼		.04	.04½	.04½	.04¾
41-43 water white	.05¼		.05	.05½	.05½	.05¾

*Louisiana, Arkansas, Mississippi and East Texas delivery.

FUEL OIL

OKLAHOMA (Group 3)—	Dec. 16		Dec. 9		Dec. 2	
Below 18 gravity Fuel Oil, per bbl.	.40	.50	.40	.50	.40	.45
18-22 Fuel Oil, per bbl.	.47½	.55	.50	.55	.50	.55
20-22 Fuel Oil, per bbl.	.50	.60	.50	.60	.55	.60
22-26 Fuel Oil, per bbl.	.55	.65	.60	.65	.60	.65
24-26 Fuel Oil, per bbl.	.65	.70	.65	.70	.65	.70
26-30 Fuel Oil, per bbl.	.70	.75	.70	.75	.70	.75
28-30 Fuel Oil, per bbl.	.80	.90	.80	.90	.80	.90
32-36 Gas Oil (industrial)	.02	.02¼	.02	.02¼	.02⅛	.02¼
32-36 Gas Oil (straw color, high cold test)	.02¼	.02½	.02¼	.02½	.02¼	.02½
32-36 Gas Oil (straw color, low cold test)	.02⅝	.02⅞	.02⅝	.02⅞	.02⅝	.02⅞
36-38 Distillate	.02¾	.02⅞	.02¾	.02⅞	.02¾	.02⅞
38-40 Straw Distillate	.02¾	.03	.02¾	.03	.02¾	.03¼
NORTH TEXAS—						
Below 20 gravity Fuel Oil, per bbl.	.35	.45	.35	.45	.40	.50
24-26 Fuel Oil, per bbl.	.50	.60	.50	.60	.55	.65
32-36 Gas Oil (industrial)	.02	.02¼	.02	.02¼	.02	.02¼
38-40 Straw Distillate	.02¾	.03	.02¾	.03	.02¾	.03
*NORTH LOUISIANA—						
18-20 Fuel Oil, per bbl.	.75	.80	.75	.80	.80	.85
30-32 Gas Oil	.02⅞	.03	.02⅞	.03	.03	.03¼
*ARKANSAS—						
33-36 Distillate	.02¾	.03	.02¾	.03	.02¾	.03
30-32 Gas Oil	.02⅝	.02¾	.02⅝	.02¾	.02¾	.02⅞
16-22 Refinery Fuel Oil, per bbl.	.60	.65	.60	.65	.65	.70
GULF COAST (South Texas)—						
Gas Oil	.03½	.03¾	.03½	.03¾	.03½	.03¾
Bunker C Fuel (cargo lots), per bbl.	.67½	.75	.67½	.75	.67½	.75
Bunker C Fuel (small lots)	.90		.90		.90	
PENNSYLVANIA—						
30-34 Fuel Oil	.03½		.03½		.03½	
36-40 Fuel Oil	.03½		.03½		.03½	
CALIFORNIA—						
33-36 Distillate	.02	.02½	.02	.02½	.02	.02½
26-32 Distillate	.01¾	.02	.01¾	.02	.01¾	.02
15-19 Fuel Oil, Bunker (at tidewater), bbl.	.55	.75	.55	.75	.60	.95
15-19 Fuel Oil (cargo lots, at tidewater), bbl.	.50	.80	.50	.80	.55	.85
15-19 Fuel Oil, f.o.b. tank cars	.30	.55	.30	.55	.35	.85
27 plus Diesel, per bbl.	.85	1.05	.85	1.05	.85	1.05
CHICAGO DISTRICT (Based on Group 3)—						
18-22 Fuel Oil, per bbl.	.57½	.62½	.60	.65	.60	.65
22-26 Fuel Oil, per bbl.	.62½	.67½	.65	.70	.65	.70
28-30 Fuel Oil, per bbl. (zero)	.90	.95	.90	.95	.90	.95
32-36 Gas Oil (industrial)	.02¼	.02⅜	.02¼	.02⅜	.02¼	.02⅜
32-36 Gas Oil (zero)	.02⅝	.02⅞	.02⅝	.02⅞	.02⅝	.02⅞
38-40 Straw Distillate	.02¾	.03	.02¾	.03	.02¾	.03

*Louisiana, Arkansas, Mississippi and East Texas delivery.

LUBRICATING OIL AND WAX

OKLAHOMA (Group 3)—	Dec. 16		Dec. 9		Dec. 2	
100 vis., 2 color, 20-25 cold test	.05	.05½	.05	.05½	.05	.05½
100 vis., 3 color, 20-25 cold test	.04¾	.05	.04¾	.05	.04¾	.05
150 vis., 3 color, 20-25 cold test	.07		.07		.07	
150 vis., 4 color, 20-25 cold test	.06½		.06½		.06½	
180 vis., 3 color, 23-28 cold test	.08½		.08½		.08½	
180 vis., 4 color, 23-28 cold test	.08		.08		.08	
180 vis., 5 color, 23-28 cold test	.07¼	.07½	.07¼	.07½	.07¼	.07½
200 vis., 3 color, 23-28 cold test	.09¾	.10	.09¾	.10	.09¾	.10
200 vis., 4 color, 23-28 cold test	.09½		.09½		.09½	
200 vis., 5 color, 23-28 cold test	.09		.09		.09	
240 vis., 3 color, 25-30 cold test	.13¼	.13½	.13¼	.13½	.13¼	.13½
240 vis., 4 color, 25-30 cold test	.12¼	.12½	.12¼	.12½	.12¼	.12½
240 vis., 5 color, 25-30 cold test	.11¼	.11½	.11¼	.11½	.11¼	.11½
280 vis., 3 color, 25-30 cold test	.15½		.15½		.15½	
280 vis., 4 color, 25-30 cold test	.14½		.14½		.14½	
280 vis., 5 color, 25-30 cold test	.13½		.13½		.13½	
Cylinder Stocks:						
600, steam refined, light green	.07	.08	.07	.08	.07	.08
600, steam refined, dark green	.04½	.05½	.04½	.05½	.04½	.05½
190-200 vis., D color, Bright Stocks	.25		.25		.25	
150-160 vis., D color, Bright Stocks 0-10 c.t.	.19	.20	.19	.20	.19	.20
150-160 vis., D color, Bright Stocks 10-25 c.t.	.18	.19	.18	.19	.18	.19
150-160 vis., D color, Bright Stocks 25-40 c.t.	.17½	.18½	.17½	.18½	.17½	.18½
150-160 vis., E color, Bright Stocks	.17	.18	.17	.18	.17	.18
Waxes:						
124-126 White Crude Scale Wax	.02	.02⅛	.02	.02⅛	.02	.02⅛

All bright stock prices are for domestic movement.

PENNSYLVANIA—						
34 Neutral	.05½	.06	.05½	.06½	.05½	.06½
34 Sundebloom	.05½		.05½		.05½	
36 Miners' Neutral	.04		.05¾		.05¾	
150, 3 color	.10¾	.12¼	.10¾	.12¼	.10¾	.12¼
180, 3 color	.15	.16	.15	.16	.15	.16
200, 3 color	.16½	.17	.16½	.17	.16½	.17
220, 3 color	.20	.21	.20	.21	.20	.21
600, steam refined	.09		.09½	.10½	.09½	.10½
650, steam refined	.14		.15	.16	.15	.16
600, Pennsylvania Flash	.15		.15½	.16½	.15½	.16½
630, Pennsylvania Flash	.23½	.24½	.23½	.24½	.23½	.24½
600, E filtered	.15	.16	.15	.17	.15	.17
600, D filtered, Oil City	.19	.20	.19	.20	.19	.20
Pennsylvania Bright Stocks below 35 C.T.	.20		.20	.21	.21	
Pennsylvania Bright Stocks above 35 C.T.	.18		.18	.18½	.18½	.19½
*122-124 White Crude Scale Wax	.02¼	.02⅜	.02¼	.02⅜	.02¼	
124-126 White Crude Scale Wax	.02⅜		.02¼	.02⅜	.02¼	

*At New York.

GULF COAST (South Texas)—						
100 vis., 2-2½ color, pale oil	.06	.06¼	.06¼	.06½	.06¼	.06½
200 vis., 3 color, pale oil	.08¼	.08½	.08½	.09	.08½	.09
300 vis., 3 color, pale oil	.09½	.09¾	.09¾	.10	.09¾	.10
500 vis., 3½ color, pale oil	.10¾	.11	.11	.11¼	.11	.11¼
750 vis., 3½ color, pale oil	.12¼	.12½	.12½	.12¾	.12½	.12¾
1,200 vis., 3½ color, pale oil	.14¾	.15	.15	.15¼	.15	.15¼
2,000 vis., 4 color, pale oil	.15¾	.16	.16	.16½	.16	.16½
200 vis., 5-6 color, red oil	.07½	.07¾	.07¾	.08	.07¾	.08
300 vis., 5-6 color, red oil	.08¾	.09	.09	.09¼	.09	.09¼
500 vis., 5-6 color, red oil	.10	.10¼	.10¼	.10½	.10¼	.10½
750 vis., 5-6 color, red oil	.11½	.11¾	.11¾	.12	.11¾	.12

REFINERY AND CRUDE PRICES

Quotations on refined products are for interstate or export movement unless otherwise noted.

1,200 vis., 5-6 color, red oil	.13¾	.14	.14	.14½	.14	.14½
2,000 vis., 6 plus color, red oil	.15¾	.16	.16	.16¼	.16	.16¼
CALIFORNIA—						
130 vis., 2½-3 color	.09	.09½	.09	.09½	.09	.09½
200 vis., 2½-3 color	.10	.10¾	.10	.10¾	.10	.10¾
300 vis., 3-3½ color	.10¾	.11½	.10¾	.11½	.10¾	.11½
350 vis., 3½-4 color	.11½	.11¾	.11½	.11¾	.11½	.11¾
400 vis., 3½-4 color	.12¼	.12¾	.12¼	.12¾	.12¼	.12¾
Red Neutral:						
200 vis., 4½-5 color	.09½	.10	.10	.10¾	.10	.10¾
300 vis., 5-6 color	.10¼	.10¾	.10¾	.11¼	.10¾	.11¼
400 vis., 5-6 color	.11	.12	.12	.12½	.12	.12½
500 vis., 4½-5 color	.12¼	.13	.13	.13½	.13	.13½
500 vis., 5-6½ color	.12	.12¾	.13	.13¾	.13	.13¾
600 vis., 6½ plus color	.13	.14	.13½	.14½	.13½	.14½

Note—Bright stocks are not manufactured commercially on the Pacific Coast.

NEW YORK (BAYONNE) REFINERY PRICES

	Dec. 16		Dec. 9		Dec. 2	
Gasoline, U. S. Motor, 58-60, 437 e.p.	.06¼	.06½	.06¼	.06½	.06¼	.07
Kerosene, water white, 41-43	.06	.06½	.06¼	.06½	.06¼	.06½
*Fuel Oil, Bunker "C," 41-43	1.05		1.05		1.05	
†Fuel Oil, Diesel, 28-30, per bbl.	2.00		2.00		2.00	
Gas Oil, 28 gravity plus	.04¼	.05¼	.04¾	.05¼	.04¾	.05¼
25 pale Paraffin Oil, tank car	.10¼		.10¼		.10¼	
28 pale Paraffin Oil, tank car	.07¼		.07¼		.07¼	
280 red Paraffin Oil, tank car	.12½		.12½		.12½	
250 red Paraffin Oil, tank car	.11½		.11½		.11½	
225 red Paraffin Oil, tank car	.10		.10		.10	
200 red Paraffin Oil, tank car	.09¼		.09¼		.09¼	
Domestic heating oil, min. 32 grav., tank car	.04½		.04½		.04½	
Refined Wax:						
120-122 a.m.p., per lb.	.03		.02⅞		.02⅞	
125-127 a.m.p., per lb.	.03¼		.03⅛		.03⅛	
130-132 a.m.p., per lb.	.03¾		.03½		.03½	
133-135 a.m.p., per lb.	.04¼		.04⅛		.04⅛	
135-137 a.m.p., per lb.	.04¾		.04⅜		.04⅜	
Petrolatum in barrels, in carload lots, per pound:						
Dark Green	.01¾		.01¾		.01¾	
Amber	.03¼		.03¼		.03¼	
Extra Amber	.03⅜		.03⅜		.03⅜	
Cream	.06		.06		.06	
Lily White	.06¾		.06¾		.06¾	
Snow White	.08		.08		.08	

*Lighterage 5 cents a barrel extra. †Lighterage 6.5 cents per barrel.

NEW YORK (BAYONNE) EXPORT PRICES

	Dec. 16	Dec. 9	Dec. 2
600, steam refined cylinder stocks, in bbls.	.16½	.16½	.16½
635, steam refined	.18½	.18½	.18½
650, steam refined	.23	.23	.23
600, Pennsylvania Flash	.23½	.23½	.23½
630, Pennsylvania Flash	.29½	.29½	.29½
600, Warren E	.23	.23½	.23½
600, Oil City E	.22	.22½	.22½
Light 140-150 Bright Stocks	.26	.26	.26
Dark 140-150 Bright Stocks	.24	.24	.24

LOS ANGELES EXPORT PRICES

	Dec. 16		Dec. 9		Dec. 2	
Kerosene, water white	.04¾	.06	.04¾	.06	.04¾	.06
*U. S. Motor Gasoline, 53-55, 437 e.p.	.05	.07½	.06	.07¼	.06½	.07½
*60-62, 400 endpoint gasoline	.07	.08½	.07½	.08¾	.08	.09¼

*For coastwise and off-shore shipments.

CRUDE OIL PRICES

OKLAHOMA, KANSAS, NORTH AND EAST CENTRAL TEXAS

Corsicana heavy (Oct. 28).....$ .75
Other fields .....See gravity table

TEXAS PANHANDLE

Gray County, Wheeler County and Carson-Hutchinson Counties—See gravity table.

WEST TEXAS

Iatan*.....Same as North Texas
Crane-Upton-Crockett, Howard and Glasscock, Mitchell and Ector .....
.....See gravity table, Column 3
Pecos and Winkler .....
.....See gravity table, Column 9
Chalk† (April 10, 1930) .....$ .75

*Includes Westbrook Field. †Posted by Humble Oil & Refining Co.

ARKANSAS-NORTH LOUISIANA

Smackover (all grades) (Oct. 30, 1930).$ .70
Carterville, Sarepta and Cotton Valley, below 36 gravity.....See gravity table
Bellevue (Oct. 30, 1930) 1.00
Urania (Oct. 30, 1930)..... .75
Calion, heavy (Oct. 30, 1930)..... .70
East El Dorado (Oct. 30, 1930) ..... .70
Other fields.....See gravity table

Note—Smackover and Bellevue posted by Standard Oil Co. of Louisiana and Magnolia Petroleum Co.; Urania posted by Louisiana Oil Refining Corp.; East El Dorado posted by Gulf Refining Co. and Magnolia Petroleum Co. Calion posted by Gulf Refining Co.

GULF COAST

Grade A (Oct. 28, 1930)*.....$1.00
Grade B, 25° and upward..See gravity table
Jennings, La. (Oct. 30, 1930)†..... .80
Refugio (light).....Same as Grade B
Refugio (heavy) (Oct. 28, 1930)*..... .75
Markham (Oct. 28)‡..... .85
High Island (Oct. 30, 1930)†..... .75

*Humble Oil & Refining Co. †Gulf Refining Co. of Louisiana. ‡Texas Pipe Line Co.

ROCKY MOUNTAIN STATES

Ohio Oil Co.-Midwest Refining Co.

Iles (Feb. 15, 1930).....$ .87
33 gravity and above..... .87
Under 33 gravity ..... .65
Dutton Creek (Oct. 28, 1930) 1.01
Rock Creek, Woy. (Oct. 28, 1930)..... 1.01
Salt Creek.....See gravity table
Big Muddy (Oct. 28, 1930)..... 1.00
Grass Creek, heavy (July 27, 1928) .... .90
Grass Creek, light (Oct. 28, 1930)..... 1.25
Mule Creek (May 21, 1929)..... 1.20
Elk Basin (Oct. 28, 1930) 1.25
Lance Creek (Oct. 28, 1930)..... 1.33
Poison Spider (Mar. 14, 1927) 1.00
Notches (Mar. 14, 1927)..... .65
Rex Lake (Feb. 22) 1.10
Osage (Nov. 1, 1930)..... .85
Lost Soldier (Oct. 28, 1930) ..... .80
Hamilton Dome (Mar. 14, 1927)..... .85
Greybull (Oct. 28, 1930)..... 1.25
Torchlight (Oct. 28, 1930)..... 1.25
Cat Creek (Oct. 28, 1930)..... 1.25
Pondera (Montana) (Oct. 28, 1930).... 1.45
Sunburst (Montana) (Oct. 28, 1930) ... 1.55
Hogback (Feb. 15, 1930)..... 1.40
Artesia (New Mexico) (Oct. 28, 1930).. .75
Lea County.....See gravity table
Border, Mont. 1.55
Red Coulee, Alberta 1.55

Note—Salt Creek, Osage, Cat Creek, Greybull and Hogback posted by Midwest Refining Co. and the remainder by the Ohio Oil Co. Both companies posted Grass Creek light and Elk Basin. Lost Soldier posted by Producers & Refiners Corp. Artesia posted by Ohio Oil Co. and Continental Oil Co. Border and Red Coulee posted by Imperial Refining Co.

(Continued on Page 148)

CRUDE OIL GRAVITY TABLE

Gravity—	Oklahoma-Kansas, N. C. Texas 1	North La. Ark. 2	Crane, Upton, Ector, Crockett, Howard, Glasscock, Mitchell (West Texas), Lea, N. M. 3	Wheeler County (Texas Panhandle) 4	Gray County (Texas Panhandle) 5	Carson and Hutchinson (Texas Panhandle) 6	Salt Creek, Wyo. 7	Stephens, Ark. 8	Pecos-Winkler (West Texas) 9	Grade B Gulf Coast and Refugio, Texas 10
Below 25	....	....	.50	....	....	....	....	....	.55	.75
25 to 25.9	....	....	.52	....	....	....	....	....	.57	.92
26 to 26.9	....	....	.54	....	....	....	....	....	.59	.94
27 to 27.9	....	....	.56	....	....	....	....	....	.61	.96
28 to 28.9	....	....	.58	....	....	....	....	....	.63	.98
Below 29	.65	.65	....	....	.50	.45	....	.54	....	....
29 to 29.9	.69	.69	.60	....	.54	.49	.69	.58	.65	1.00
30 to 30.9	.73	.73	.62	....	.58	.53	.73	.62	.67	1.02
31 to 31.9	.77	.77	.64	....	.62	.57	.77	.66	.69	1.04
32 to 32.9	.81	.81	.66	....	.66	.61	.81	.70	.71	1.06
33 to 33.9	.85	.85	.68	....	.70	.65	.85	....	.73	1.08
34 to 34.9	.89	.89	.70	....	.74	.69	.89	....	.75	1.10
35 to 35.9	.92	.92	.72	....	.77	.72	.92	....	.77	1.12
36 to 36.9	.95	.95	.74	....	.80	.75	.95	....	.79	1.14
37 to 37.9	.98	.98	....	....	.83	.78	.98	....	....	1.16
38 to 38.9	1.01	1.01	....	....	.86	.81	....	....	....	1.18
39 to 39.9	1.04	1.04	....	....	.89	.84	....	....	....	1.20
40 and above	1.07	1.07	....	....	.92	.87	....	....	....	1.22

Column 1—Carter Oil Co. posted above prices for Oklahoma and Kansas on October 28. Humble Oil & Refining Co. posted same for North Central Texas on October 28. Magnolia Petroleum Co. posted same for Kansas, Oklahoma and North Central Texas on October 27 from 29 degrees upward, but posted below 26 degrees at 53 cents; 26-26.9 degrees at 57 cents; 27-27.9 degrees at 61 cents; 28-28.9 degrees at 65 cents. Stanolind Crude Oil Purchasing Co. on November 1 adopted the schedule as listed in table; Prairie Oil & Gas Co. adopted the same on November 1, other companies following. North Central Texas, for the purpose of this table, includes North Texas, Ranger district, Mexia, Powell, Richland, Wortham, Van, Lytton Springs, Currie, Nocona, Moran and Corsicana (light oil).

Column 2—The Texas Company posted above prices on Caddo and Red River crude, up to 39-39.9 degrees. It also posted 40-40.9 degrees at $1.07; 41-41.9 degrees at $1.10; 42-42.9 degrees at $1.13; 44-44.9 degrees at $1.16, and 44 degrees and above $1.19. Standard Oil Co. posted schedule as listed in table on October 30; Magnolia Petroleum Co. on October 30 posted prices as listed, starting at 29 degrees, but posted below 26 degrees, 53 cents; 26-26.9 degrees, 57 cents; 27-27.9 degrees, 61 cents; 28-28.9 degrees, 65 cents. Louisiana Oil Refining Co. adopted Standard of Louisiana prices on October 30. North Louisiana and Arkansas fields included in table are Caddo, Bull Bayou, Crichton, DeSoto, Haynesville, Homer, Cotton Valley, Sarepta-Carterville, El Dorado and Rainbow.

Column 3—Posted by Humble Oil & Refining Co. on October 28.

Column 4—Companies quit posting but crude takes present Hutchinson-Carson prices.

Column 5—Humble Oil & Refining Co., Magnolia and Prairie, October 28. Prairie ceased posting and purchasing in all Panhandle fields November 27.

Column 6—Humble Oil & Refining Co., October 28.

Column 7—Midwest Refining Co. on October 28. All crude over 37 degrees 98 cents.

Column 8—Louisiana Oil & Refining Co. and Atlantic Oil Producing Co., October 30.

Column 9—Humble Oil & Refining Co., October 28.

Column 10—Humble Oil & Refining Co., October 28. On October 30, Gulf Refining Co. of Louisiana and Gulf Pipe Line Co. of Texas posted as follows for Grade B: Below 25 degrees, 69 cents; 25-25.9 degrees, 71 cents, with a 2-cent differential for each degree upward to and including 40 degrees and above at $1.01. The Texas Company adopted above schedule November 1.

CALIFORNIA CRUDE OIL PRICES

Standard Oil Co. (effective September 15, 1930), Union Oil Co. (effective September 15, 1930)

Gravity—	Long Beach, Seal Beach, Alamitos Hts., Huntington Beach, Inglewood, Torrance, Richfield, Olinda, Brea Canyon 1	Whittier, La Habra, Coyote Hills 2	Midway-Sunset, Elk Hills, Lost Hills, Belridge, Buena Vista Hills 3	Montebello 4	Santa Fe Springs 5	Santa Maria, Coalinga 6	Wheeler Ridge 7	Orcutt, Ventura, Rincon 8	Ventura Avenue 9	Elwood Terrace 10	Athens, Rosecrans, Dominguez 11
14 to 14.9	.70	.70	.55	.70	....	.55	.55	.55	.70	....	....
15 to 15.9	.70	.70	.55	.70	....	.55	.55	.55	.70	....	....
16 to 16.9	.70	.70	.55	.70	....	.55	.55	.55	.70	....	....
17 to 17.9	.70	.70	.55	.70	....	.55	.55	.55	.70	....	....
18 to 18.9	.76	.76	.62	.71	....	.62	.62	.65	.76	....	....
19 to 19.9	.82	.82	.70	.77	....	.70	.70	.70	.82	....	....
20 to 20.9	.88	.87	.78	.83	....	.78	.78	.78	.88	....	....
21 to 21.9	.94	.93	.86	.90	.92	.86	.86	.90	.91	....	....
22 to 22.9	1.00	.98	.94	.97	.95	.94	.94	.95	.94	....	....
23 to 23.9	1.07	1.04	1.02	1.05	1.01	1.02	1.02	1.02	1.00	....	....
24 to 24.9	1.12	1.08	1.06	1.08	1.05	1.04	1.04	1.08	1.05	....	1.12
25 to 25.9	1.17	1.12	1.10	1.11	1.09	1.06	1.06	1.11	1.10	....	1.17
26 to 26.9	1.22	1.16	1.14	1.15	1.13	1.08	1.08	1.15	1.15	....	1.22
27 to 27.9	1.26	1.21	1.18	1.19	1.18	1.11	1.10	....	1.19	....	1.27
28 to 28.9	1.30	1.25	1.23	1.23	1.23	1.15	....	....	1.23	....	1.32
29 to 29.9	1.34	1.29	1.29	1.26	1.28	1.19	....	....	1.27	....	1.37
30 to 30.9	1.38	1.33	1.35	1.29	1.33	1.23	....	....	1.31	....	1.42
31 to 31.9	1.42	....	1.40	....	1.38	1.27	....	....	1.35	....	1.47
32 to 32.9	1.48	....	1.47	....	1.43	1.31	....	....	1.41	....	1.52
33 to 33.9	....	....	1.53	....	1.48	1.35	....	....	1.47	....	1.57
34 to 34.9	....	....	1.59	....	1.53	1.39	....	....	1.53	1.32	1.62
35 to 35.9	....	....	1.65	....	1.58	1.43	....	....	1 59	1.39	1.66
36 to 36.9	....	....	....	....	1.63	....	....	....	....	1.46	1.72
37 to 37.9	....	....	....	....	1.68	....	....	....	....	1.53	1.78
38 to 38.9	....	....	....	....	1.73	....	....	....	....	1.60	1.84
39 to 39.9	....	....	....	....	1.78	....	....	....	....	1.66	1.90
40 to 40.9	....	....	....	....	....	....	....	....	....	1.72	1.96
41 to 41.9	....	....	....	....	....	....	....	....	....	1.78	2.02
42 to 42.9	....	....	....	....	....	....	....	....	....	1.84	2.08

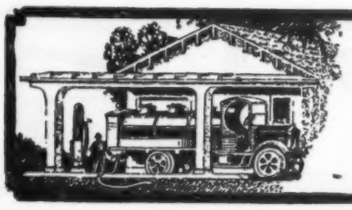
Kern River, Newhall-McKittrick, Mount Poso and Round Mountain, 11 to 13.9 gravity, 50 cents; 14 gravity and above, 55 cents, effective March 11. On March 11 the Union Oil Co. posted Midway-Sunset, Elk Hills, Buena Vista, Lost Hills and Coalinga crude as follows: 11 to 13.9 gravity at 50 cents. Fruitvale, posted by General Petroleum Co., 11-13.9, 50 cents; 14 gravity and above, 55 cents.

Column 1—Signal Hill, Seal Beach, Huntington Beach and Alamitos Heights crude, 14 to 32.9 gravity, inclusive; Richfield, Olinda-Brea and Fullerton, 14 to 30.9 gravity; Torrance and Inglewood, 14 to 28.9 gravity.

Column 2—Whittier crude, 14 to 22.9 gravity; Coyote Hills, 14 to 30.9 gravity.

Column 3—Kern River, Newhall and McKittrick, 11 to 19.9 gravity; Midway-Sunset, Buena Vista and Elk Hills, 11 to 33.9 gravity; Lost Hills, 11 to 34.9 gravity; oil below 14 gravity posted at 50 cents.

(Continued on Page 150)



TANK WAGON MARKETS

Tank wagon quotations for gasoline and kerosene in United States as furnished by the larger marketing concerns Dec. 16

ALL TANK WAGON AND SERVICE STATION QUOTATIONS INCLUDE TAXES

STANDARD OIL CO. (INDIANA)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Chicago†	16 0	17.0	3.0	11.0
Decatur, Ill.	13.0	15.0	3.0	11.0
E. St. Louis	15 7	14 7	3 0	10.2
Joliet	16 4	17 4	3.0	11.0
Peoria	15 0	14 0	3.0	11.0
Quincy	16 2	17 2	3.0	10.8
Davenport, Ia.	16.5	16.5	3.0	11.2
Des Moines	15.5	15 5	3.0	11.3
Keokuk	16 5	17.5	3.0	11.3
Sioux City	16 1	15 9	3.0	10 9
Duluth, Minn.	17.5	17.5	3.0	11 9
Mankato	14 0	14.0	3.0	11 7
Minneapolis	17.0	17.0	3.0	11 9
La Crosse, Wis.	16.2	17.2	3.0	12.0
Milwaukee	15 1	15.0	2.0	10.9
Madison	15.3	15.3	2.0	11.1
Detroit, Mich.	13.3	12.5	3.0	12.7
Grand Rapids	15 7	16.7	3.0	12 6
Saginaw	14 3	14.3	3.0	12.8
Evansville, Ind.	17.1	18.1	4.0	11.9
Indianapolis	16.9	17.9	4.0	12.1
South Bend	17.4	18.4	4.0	12.2
Fargo, N. D.	18 9	19.9	3.0	13.9
Huron, S. D.	17.5	17.5	4.0	12.7
Sioux Falls	17 8	16.4	4.0	12.4
K. C., Mo.	14 9	14.9	3.0	9.6
Springfield*	15 9	16.9	3.0	10 5
St. Louis*	12 9	13 0	2.5	10.3
St. Joseph	15.5	11.9	2.0	10 1
Wichita, Kans.	14 8	13.8	3.0	9.8
Bartlesville, Ok.	15 5	18.5	4.0	9.5

*State tax 2 cents; remainder city tax.
†Effective June 3, discounts on Q.D.A. in Chicago district 4 cents off service station price on purchases of 500 gallons or more per month and 5 cents on purchases of 1,000 gallons or more per month.

Effective August 5, the following quantity discounts from the service station prices are allowed on monthly sales of gasoline: 500 gallons or more, 3 cents; 75,000 gallons or more, 4½ cents. Discounts are allowed each month and they are not cumulative. Delivery tickets showing date and quantity delivered must be sent to the seller before the tenth of the month to secure the discount on the previous month's purchases.

PACIFIC COAST TERRITORY

Standard Oil Co. (California)

	Gasoline			Kero.
	Wh'ls'e price	Retail price	Incl'ds tax of	tank wagon
Fresno	23.0	21 0	3 0	17.0
San Francisco	23 0	21 0	3 0	15 5
Los Angeles	22 5	20 5	3.0	15.5
Reno, Nev.	28.0	26.0	4 0	19.0
Portland, Ore.	22 5	20 0	4.0	16 5
Seattle, Wash.	23 5	21 5	3.0	16 5
Tacoma	23 5	21 5	3.0	16 5
Spokane	27.5	22 0	3.0	20.5
Phoenix, Ariz.	19.5	23 5	4.0	20.0

Above prices are at company's plant or depots as company does not operate stations. A 6-cent per gallon discount is given dealers and customers taking tank wagon lots except in Phoenix where the discount is 1 cent.

SOUTHWESTERN DISTRICT

Magnolia Petroleum Co.

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Dallas, Tex.	14.0	17.0	4.0	11.0
Fort Worth	14.0	17.0	4 0	10.0
Houston	15 0	19 0	4.0	11.0
San Antonio	13 0	17.0	4.0	10.0
El Paso	16.0	20.0	4.0	12.0
Texarkana	17 0	17.0	4 0	12 0
Muskogee, Ok.	15.0	18.0	4 0	9 0
Okla. City	13.0	16.0	4 0	10 0
Tulsa	13 0	17.0	4.0	10.0
Ft. Smith, Ark.	15.5	16.5	5.0	12.0
Little Rock	14.0	15.0	5.0	12.0

One-cent rebate made from posted station prices to cash purchasers in Louisiana, Arkansas and Tennessee.

NEBRASKA

Standard Oil Co. (Nebraska)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Omaha	17.25	18.25	4.0	11 25
McCook	18 75	20.75	4 0	12.75
Norfolk	17 25	17.25	4.0	11.75
N. Platte	18.75	20.75	4 0	12 50
Scottsbluff	18 75	20.75	4 0	12.25

OHIO

Standard Oil Co. (Ohio)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Ohio points*	16 0	17.0	4.0	†13.0

*Dealers and commercial accounts 2 cents under tank wagon.
†Service station price 14 cents.

CENTRAL SOUTH DISTRICT

Standard Oil Co. (Louisiana)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
N. Orleans, La.*	15.5	16.5	6.0	12.0
Baton Rouge	16 5	17.5	5.0	13.0
Alexandria†	17.0	18.0	6.0	13.0
Lafayette*	17.5	18.5	6.0	13.0
Lake Charles*	17.5	18.5	6.0	13.0
Shreveport	16.5	17.5	4 0	13.0
Knoxville, Tenn.	18 0	19 0	5 0	15 0
Memphis	16.0	17.0	5.0	12.5
Chattanooga	17 5	18.5	5.0	13 0
Nashville	17 0	18 0	5 0	15 0
Bristol	19 0	20 0	5 0	14 0
Lt. Rock, Ark.	15.0	16.0	5.0	12.0

*Includes city tax of 1 cent. Louisiana kerosene prices include 1-cent state tax. New Orleans kerosene price also includes 1-cent city tax.
†Gasoline price at Alexandria includes 1-cent tax in parish of Rapides.

One-cent discount allowed off station price on all cash purchases. All other station discounts withdrawn October 2, 1930.

Two-cent discount off gasoline tank wagon price to dealers and commercial accounts.

ATLANTIC COAST DISTRICT

Standard Oil Co. (New Jersey)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Atlanta, Ga.	20 0	22.0	6 0	13.5
Newark	12 5	14 5	2 0	10.5
Annapolis, Md.	16.0	17.0	4.0	11.0
Baltimore	15.2	16.2	4 0	9.5
Cumberland	17 0	18.0	4 0	12 0
Wash'gton, D.C.	13 7	14 7	2 0	10.7
Danville, Pa.	17.8	18.8	5.0	11.8
Norfolk, Va.	16 3	17 3	5 0	10.0
Petersburg	17.3	18 3	5 0	11.3
Roanoke	18 0	18 0	5.0	12 0
Richmond	16 7	17.7	5 0	10 7
Charles'n, W.Va.	16.5	17.5	4.0	11.5
Keyser	17.1	18.1	4 0	12 0
Parkersburg	15 2	16 2	4.0	10 2
Wheeling	16 4	17 4	4 0	11 4
Charlotte, N. C.	18 9	19 3	5.0	12.3
Hickory	18.6	19.6	5 0	12 6
Mt. Airy	18 5	19.5	5.0	12 5
Salisbury	18 5	19 5	5 0	12 5
Charleston, S.C.	17 3	18.3	6.0	10.3
Columbia	19.2	20 3	6 0	12 3

A 2-cent per gallon discount off the gasoline tank wagon price is offered to dealers.

SOUTHERN DISTRICT

Standard Oil Co. (Kentucky)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Atlanta, Ga.	20.0	22.0	6 0	13.5
Augusta	20 0	22 0	6 0	15 5
Macon	20 0	22.0	6.0	13.0
Savannah	18.0	20 0	6.0	14.0
Birm'ham, Ala.	17 0	18.0	5.0	14 5
Mobile	17 0	19.0	4.0	10.5
Montgomery	17 0	18 0	4 0	15 0
Clarks'le, Miss.	18.0	18.0	5 0	11.0
Jackson	15 0	17 0	5 0	13.0
Natchez	18.0	20 0	5.0	13.0
Gulfport	18 0	18.0	5.0	13.0
Vicksburg	18 0	20 0	5 0	13.0
Jack'ville Fla.	17 0	19.0	6.0	14.0
Miami	19 0	21 0	6 0	14.0
Pensacola	20.0	21 0	6.0	13.5
Tampa	18 0	20.0	5.0	13.0
Lexington, Ky.	17 0	18.0	5.0	14 5
Covington	18 0	20.0	5.0	14.5
Louisville	16.0	18.0	5.0	12 0
Ashland	18.0	20 0	5 0	15.0
Catlettsburg	18.0	20 0	5 0	15.0

In addition to the state tax of 4 cents on gasoline, Montgomery has city tax of 1 cent on gasoline and one-half cent on kerosene. Kerosene prices in Georgia include 1-cent tax. In Florida, an inspection fee of 0.125 cent; in Alabama, an inspection fee of one-half cent on kerosene and one-fourth cent on gasoline. To Pensacola, Montgomery, Birmingham and Mobile state taxes add 1-cent levy tax. To Gulfport state tax add privilege tax of 2 cents.

Effective April 2, price to dealers 2 cents under posted tank wagon price.

NEW YORK AND PART OF NEW ENGLAND DISTRICT

Standard Oil Co. (New York)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Albany, N. Y.	15.6	17.6	2.0	15.6
New York*	14.3	16.3	2 0	14 3
Buffalo	17 8	19.8	2 0	14 8
Rochester	18.0	20.0	2 0	14 0
Syracuse	18.8	20.8	2.0	14.8
Boston, Mass.	14 5	16.5	2.0	13.5
Augusta, Me.	19 8	21.8	4 0	14.8
Manch't'r, N.H.	19.4	21 4	4 0	14 0
Burlington, Vt.	19.6	21.6	4.0	15.3

*Prices in steel barrels.

PENNSYLVANIA—DELAWARE AND PART OF NEW ENGLAND

The Atlantic Refining Co.

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Pittsburgh, Pa.	14.0	19.0		12 0
Philadelphia	14 0	19 0		12.0
Scranton	14 0	19 0		12.0
Allentown	14.0	19.0		12 0
Altoona	14.0	19.0		12 0
Erie	14 0	18.0		11 0
Dover, Del.	17.0	19.0	3 0	12 0
Wilmington	17.0	19 0	3 0	12.0
Springf'd, Mass.	17 5	19.5	2.0	10 0
Worcester	17 3	19 3	2 0	10.0
Boston	14 5	16 5	2 0	10.3
Providence, R.I.	12 7	14 7	2.0	10.6
Hartford, Conn.	17.5	19 5	2 0	10.0
New Haven	17.6	19 6	2 0	10 0

*Includes tax of 3 cents. Pennsylvania tax is collected by the dealer and paid by him direct to the State. The Atlantic Refining Co. recognizes a 2-cent per gallon discount on gasoline from its posted tank wagon markets on sales to dealers for purposes of resale. The Atlantic Refining Co. also recognizes a maximum discount of 2 cents per gallon on gasoline to commercial accounts under contract for one year.

ROCKY MOUNTAIN DISTRICT

Continental Oil Co.

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax of	tank wagon
Denver, Colo.	16 0	19 0	4.0	13.5
Pueblo	17.0	20.0	4.0	13.5
Grand Junction	18.0	19.0	4 0	17.0
Casper, Wyo.	17 0	20.0	4.0	12.0
Cheyenne	18.0	21 0	4 0	13.5
Butte, Mont.	19 0	22.0	5.0	18 0
Billings	20.0	23.0	5.0	16 5
Great Falls	20.0	23.0	5 0	18.0
Helena	20.0	23.0	5.0	18.0
Salt Lake, Utah	20 0	23.0	3.5	17.0
Albu'que, N. M.	16.0	16.0	5 0	14 0
Boise, Idaho	23.5	....	5 0	19.0
Twin Falls	23.5	....	5.0	19.0

STANOLIND FURNACE OIL IN CHICAGO

Less than 100 gallons	9 0
100 to 349 gallons	8 0
350 gallons or more	7.5

Note—Outside Chicago furnace oils discount of 1 cent per gallon is given on deliveries of 100 to 349 gallons and 1½ cents on deliveries of 350 gallons or more.

NAPHTHA

	Tank wagon	Tank car
Oleum spirits	12 0	8.0
V.M.&P. naphtha	14 0	9 5
Cleaner's naphtha	16 2	11.0
Stanisol	16 2	11.0

Tank wagon prices f.o.b. Chicago; tank car prices f.o.b. Whiting.

TANK WAGON CHANGES

Standard Oil Co. of California reduced the wholesale gasoline price in Portland, Ore., 2 cents to 22.5 cents. On the same date the retail gasoline prices were advanced to 21.5 cents in Seattle and Tacoma, Wash.

Standard Oil Co. of Kentucky reduced the gasoline tankwagon and the station price 2 cents in Montgomery, Ala., December 6, to 17 and 18 cents. On December 10 the tank wagon and station prices were also reduced in Birmingham, Ala., to 17 and 18.

Continental Oil Co. reduced the gasoline station price 2 cents in Albuquerque, N. M., to 16 cents.

Standard Oil Co. of Ohio reduced the gasoline tank wagon and station prices 2 cents December 17 making the new schedule 16 and 17 cents, respectively. Kerosene was also reduced 2 cents.

Magnolia Petroleum Co. reduced the gasoline tank wagon and station prices 1 cent each in Fort Smith, Ark., December 5, and in Little Rock, Ark., December 4.

WEAKER GULF COAST MARKET

A decided slowing up in demand for Gulf Coast pale and red oils during the past week was reflected in general reductions in quotations by all sellers. All grades of lubricating stocks were around a quarter cent weaker Tuesday than they have been. Some increase in sales was indicated during October and November but the generally unsettled conditions together with the efforts of both buyers and sellers to reduce inventories to a minimum by January has forced refiners to cut prices to encourage business.

A weaker tone also was evident in gasolines following further slipping of the North Texas market bringing new low prices for coastal material moving out on contract based on North Texas prices. Although Gulf Coast sellers have been slow to let the spot market follow the contract sales prices, there naturally has been a very unsettled situation. Spot business, however, is being held around a half cent or more above the contract market.

No change was indicated in fuel oil or gas oil. Occasional inquiries for zero test gas oil for northern burner oil markets are received but quotations of 3½ to 3¾ cents evidently have been considered too high by buyers. The market is at a standstill.

PIPE LINE CONTRACT AWARDED

ELDORADO, Kans., Dec. 13.—The Truman Smith Construction Co. of Eldorado has been awarded the contract by the Continental Oil Co. for laying 80 miles of 8-inch oil pipe line from Three Sands, Okla., to Oklahoma City.

CRUDE OIL PRICES

(Continued from Page 147)

SOUTH CENTRAL AND SOUTHWEST TEXAS

Darst Creek (Oct. 28, 1930)*	$0.90
Luling (Oct. 28, 1930)†	.75
Mirando (Oct. 28, 1930)*	.75
Pettus (Oct. 28, 1930)*	1.10
Salt Flat (Oct. 28, 1930)*	.90
Thrall‡	
Lytton Springs (Lockhart). See gravity table	
Dobrowolski (Oct. 25, 1930)‖	
Same as Mid-Continent gravity scale up to and including 38-38.9° at	1.01
Somerset (Oct. 25, 1930)¶	
Same as Mid-Continent gravity scale up to and including 38-38.9° at	1.01

*Posted by Humble Oil & Refining Co. and Magnolia Petroleum Co. †Magnolia Petroleum Co., Humble Oil & Refining Co., Crown Central Pipe Line Co. ‡Thrall prices same as North Central Texas less 19½ cents per cwt. freight. ¶Grayburg Oil & Refining Co., Pioneer Oil & Refining Co. and Texas Petroleum Products Co. ‖Pioneer Oil & Refining Co.

EASTERN STATES

Joseph Seep Purchasing Agency
(Effective Nov. 12, 1930)

Seep Purchasing Agency withdrew from Bradford and Allegany Fields as a purchaser on May 16.

Penna. Grade Oil in National Transit Lines (Pennsylvania)	$1.85
Penna. Grade Oil in Southwest Pennsylvania Lines (Pennsylvania)	1.80
Penna. Grade Oil in Eureka Pipe Line Lines (West Virginia)	1.70
Penna. Grade Oil in Buckeye Pipe Line Lines (Ohio) (Sept. 14, 1930)	1.45
Corning Grade Oil in Buckeye Pipe Line Co.'s Lines (Oct. 28, 1930)	1.30
Somerset Oil in Eureka Pipe Line Lines (Kentucky) (Aug. 1, 1930)	1.14
Ragland Grade Oil in Cumberland Pipe Lines (Kentucky)	1.10
Wayne District Oil in Cumberland Pipe Lines	1.17

Tide Water Pipe Co.

Bradford district (Nov. 12, 1930)	2.15
Allegany district (Nov. 12, 1930)	2.15

Pure Oil Co.

Cabin Creek, W. Va. (Nov. 12, 1930)	$1.70
Kelly Creek, W. Va. (Nov. 12, 1930)	1.70
Bradford Hollow, W. Va. (Nov. 12, 1930)	1.70

MIDDLE WESTERN STATES

Ohio Oil Co.
(Effective Oct. 28, 1930)

Lima	$1.10
Wooster	1.40
Illinois	1.30
Indiana	.87
Princeton	1.30
Plymouth	.88
Western Kentucky	1.15
Midland, Mich.*	1.10
Dundee, Mich (Oct. 26)‖	
Same as Mid-Continent gravity scale	
Upper and Lower Traverse Sands, Mich. (Oct. 28)‖	
Same as Mid-Continent gravity scale	
Cumberland, Clay, Barren, Clinton and Monroe Counties, Kentucky (Oct. 28)‡	.85
Oil City, Ky.¶	1.10
Oil Springs (Canada) (Oct. 28)¶	1.57
Petrolia (Canada) (Oct. 28)¶	1.50

*Posted by Pure Oil Co. ‡Posted by Paragon Development Co. §Posted by Stoll Refining Co. ¶Posted by Imperial Oil Co., Ltd. ‖Posted by Standard of Indiana for boat shipment.

MEXICAN CRUDE

Panuco*	$0.86

*F.o.b. ship, based on October transactions and exclusive of taxes and bar dues.

PETROLEUM JELLY . . . a familiar friend in every household . . . is the same sticky salve that makes motor oils thick and sluggish in winter.

The great Sinclair refineries, with modern refrigerators and separators, remove this paralyzing petroleum jelly from Sinclair Opaline at as low as 60° F. below zero. (Opaline is guaranteed to flow at zero.) With Opaline your customers are not forced to change to "light" motor oils for easy starting in winter!

Opaline is refined from paraffin base crudes according to the Sinclair Law of Lubrication. (Write for booklet explaining this famous Sinclair Law . . . it's a sensational sales builder you shouldn't overlook!)

This is the story and above is the girl who'll carry it into millions of homes from coast to coast. Cash in on the sweeping Opaline sales.

* * *

Send a post card to our nearest office and a Sinclair salesman will tell you all about it. Sinclair Refining Company (Inc.), New York, Atlanta, Chicago, Fort Worth, Houston, Kansas City. Sinclair Refining Company of Canada, Ltd., Toronto. Sinclair Refining Company of California, Los Angeles.

SINCLAIR OPALINE

REG. U. S. PAT. OFF.

MOTOR OIL

OXY-ACETYLENE WELDING OF OIL AND GAS LINES

(Continued from Page 69)

perfect" welding is required to meet the construction and operating services. One outstanding development which is being followed this year to give assured high weld quality is the use of a thin backing up liner to aid in the welding of the pipe joint. These liners are of thin material, about one-sixteenth to three-thirty-second inch thick, depending upon the pipe diameter, and about one-fourth to one-half inch wide, which fit the inside of the pipe joint under the butt weld. The liner with the spacers attached to it, accurately governs the spacing and permits the operator to fuse readily for the full wall thickness. In fact, with special design of liner, it is possible to reinforce the inside of the joint, fusing to the liner, making it an integral part of the weld. There are, of course, no protrusions or icicles and yet it is reinforced on the inside to give a full strength joint even without external reinforcement which it fallaciously had been assumed compensated for weakness that often occurred at the bottom of the joint, The liner so snugly fits the inside of the wall that there is little obstruction, if any, to the flow of the transmitted fluid. On the larger diameters these have proved to be economical and desirable in obtaining the weld quality necessary.

As stated before, the oxy-acetylene welded joint has been economical. With the development of efficient welders and the welding more on a mass production basis, which the industry has enjoyed, the cost has decreased. The cost today in welding even the larger diameters is less than the cost of welding the smaller sizes several years ago. Means of reducing the cost and speeding up the welding have been given careful consideration. Suitable progress has been made along these lines in the way of using larger flames, decreasing the angle of the vee and in keeping the weld as small as possible. Moreover, there has been a decided reduction of the depth of fusion into the sides of the vee, as the practice in the past of melting for quite a distance into the walls of the pipe, carrying a large weld, is somewhat extravagant and costly. Many of these developments place oxy-acetylene welding in a favorable position with competitive processes.

Workmanship Improved

Workmanship in general has shown a decided improvement in the last few years. More and more the companies engaged in welding are closely qualifying and checking the welders and with development of suitable portable testing machines, now available, this type of inspection has proved decidedly advantageous in increasing the quality of the workmanship. The workmanship on some of the larger lines being welded, as a result of this engineering control, is of a quality unbelievable a couple of years ago. In fact, a study of their test results shows that every joint is nearly as perfect as the pipe.

Before concluding, a few words should be said of a new field for oxy-acetylene pipe line welding that offers tremendous possibilities namely that of gasoline lines.

The apparent success obtained by the Standard Oil Co. of New Jersey in converting its oil line carrying oil eastward to the Atlantic Coast into a gasoline line carrying gasoline westward, has led to some outstanding developments in this field. This year has witnessed the beginning of the construction of three very long gasoline lines; one, the Sun Oil, running from Philadelphia to Pittsburgh, Cleveland and other cities in Ohio; second, the Phillips Petroleum line from Texas to Kansas City and St. Louis, and the Great Lakes Pipe Line of the Continental and Barnsdall companies, a 1,300-mile line from Oklahoma refineries to Chicago and the Great Lakes region. All of these lines are oxy-acetylene welded. The engineering features in the construction and operation of these lines offer no special problem and with the proving of the economical factors connected with their use, it is anticipated that a new large field of pipe line construction will be open to carry gasoline to various parts of the country from the refineries of the various companies. Some of these, no doubt, as in the oil transportation, may become large public carrier systems. As the lines are small and particularly adaptable to the oxy-acetylene construction, requiring the adaptability, versatility and reliability characteristic of this process, a promising future is opened up for the use of oxy-acetylene welding in this new field.

OIL INDUSTRY MUST CORRECT EVILS TO RECOVER, SAYS H. F. SINCLAIR

H. F. Sinclair, chairman, Sinclair Consolidated Oil Corp., makes the following statement in response to numerous requests for his opinion on the petroleum outlook for 1931:

"The petroleum industry has little reason to expect a return to prosperity until it corrects the evils that afflict it and its house is put in order. I believe that the executives of the oil companies see the situation more clearly now than ever before and will in time work out their problems. In the meanwhile, false optimism would do more harm than good.

"We are suffering from overdevelopment in production, transportation, refining capacity and marketing facilities. The duplication of marketing facilities, especially service stations, has been carried to such lengths as almost to be a public nuisance not to mention the strain upon the resources of the oil companies. The endeavor to outstrip the other fellow has led to extravagance in distribution costs that is wholly unjustified. Demoralization of prices has served to emphasize this and other evils.

"While we hear much of oversupply, it would be more accurate to say that we have had overdevelopment which has built up a huge 'potential.' We do not know the facts, but the industry lives under this potential cloud. We must find out what is the actual as distinguished from the potential before the industry will know the real problem it has to handle. It is imperative that drilling of new wells be stopped as long as present conditions continue. Legislation and regulation never saved an industry. We have our salvation in our own hands.

"First find out where we stand, actually rather than potentially Then revise our methods of operation in accordance with the facts, and prosperity can be restored. On the other hand, if the industry waits for some miracle to save it from the consequences of its own folly, conditions may get worse instead of better."

WELDING DEVELOPMENT BY ACETYLENE PROCESS

(Continued from Page 69)

is the refinery. Wide acceptance of the oxy-acetylene welded pipe joint by many larger refiners has been the result of careful study of the advantages offered by the method. Piping which conveys hot oil and vapors at high temperatures and pressures must be leak-proof to provide maximum safety. Other features are of secondary importance.

It was recently the author's pleasure to inspect a large modern refinery which had just been completed. Several outstanding features brought to my attention are worthy of mention at this time. since so far as we know this is the largest recent installation in this country where the oxy-acetylene welded pipe joint was used to its fullest advantage.

Securing Satisfactory Welders

The problem of securing satisfactory welders was important. Approximately 3,500 applicants were tested, from which a crew of 80 was chosen. The customary test was made—each applicant was required to make a stationary or position weld in two short pieces of pipe, under the observation of the welding foreman. From the test unit coupons were cut and inspected and pulled in a testing machine. Each weld in the piping was marked by the welder and all welders took periodic tests to check up on their ability. Out of some 100,000 welds less than 50 leaks were found. In the condenser coils, which were made from 2-inch extra heavy pipe, some difficult welding was necessary since these coils were designed on the close centers of only 4 inches. One end of the return fitting was welded on the ground to the straight pipe. The other end was welded in position.

The welding procedure of this particular refinery is somewhat unusual. The specifications covering the dimensions of the weld provide that an unusually heavy reinforced weld must be made. It is felt that in this way a strength of 120 to 130 per cent that of the base metal is secured in 90 per cent of the welds. Any imperfect welds test out at least equal to the base metal strength.

It is logical to assume that the next few years will show a decided trend toward long cross country pipe lines for carrying refined petroleum products. Lines for carrying gasoline are now a reality, and two of them are now under construction. Oxy-acetylene welding will play a prominent part in the building of these lines, and the possibilities of this field are well worth our careful consideration.

Getting closer to the market, we next find the bulk station where petroleum products are stored for distribution by truck or tank car to the consuming centers. Considerable piping is necessary to convey the various products. Steam lines are necessary to warm the heavy viscous fuel oils in cold weather so that they can be pumped more easily.

One other field in connection with petroleum and petroleum products is beginning to turn to the oxy-acetylene welded pipe joint. Certain restrictions, however, at this time limit the use of the welded joint in this, the marine field. The use of the oxy-acetylene welded pipe joint in river packets is also becoming more extensive.

The welded pipe joint in the piping used in natural gas and natural gasoline fields also has found wide acceptance. This field resembles closely the handling of petroleum and petroleum products. The manufactured gas plant also has found the oxy-acetylene welding and cutting torch a handy tool in overcoming piping problems.

The distribution of gas throughout our cities is pioneer field for the welded pipe joint. Reduction of leakage in mains and service lines has made the welding of pipe joints in this field almost universal. Much of this piping is exposed, and neat appearance is a necessary feature.

C. W. BURTIS DIES

NEW YORK, Dec. 15.—Charles W. Burtis, former vice president of the Tide Water Oil Co. and comptroller of the Tide Water Pipe Line Co., died at his home at Cranford, N. J., this week at the age of 75. Mr. Burtis was born at Titusville, Pa., and spent most of his business life in the oil business, retiring from the Tide Water organization seven years ago.

CALIFORNIA CRUDE OIL PRICES

(Continued from Page 147)

Column 5—Price change posted by Standard of California September 16.
Column 6—Oil below 14 gravity posted at 45 cents.
Column 8—Posted by General Petroleum Co.
Kettleman Hills—Union Oil Co., September 22, 35 to 39 gravity, $1.10; 40 to 44 gravity, $1.20; 45 to 49 gravity, $1.35; 50 to 54 gravity, $1.50; 55 gravity and above, $1.65. Standard Oil Co. of California, 55 gravity and above, $1.65.

VACUUM OIL MAKING PROGRESS IN PROGRAM

(Continued from Page 138)

pany early this year completed arrangements for the manufacture of tires, batteries and other automobile accessories to be sold under the company's own brand through its owned and controlled filling stations.

Vacuum also this year acquired the business of the Wadhams Oil Corp. of Milwaukee, the Queen City Petroleum Products Co., jobbers and operators of a string of filling stations in Cincinnati and southwestern Ohio, the Commonwealth Oil Co. and Great Western Oil Co., both jobbers and operators of filling stations in Cleveland, Ohio, and other points in the Cleveland territory, and the Moreland Oil Corp. of Adrian, Mich.

In addition to the purchase of these marketing outlets, Vacuum has this year materially extended its own distributing organization in the East. The company operates a number of stations in Pennsylvania, and is also well represented in New York State, although thus far the company has not come into the metropolitan territory with its retail operations.

The first major step in Vacuum's expansion program was the acquisition late in 1929 of the business of the Lubrite Refining Co., which was reorganized into the Lubrite Refining Corp., under Vacuum ownership. Lubrite was an old established company operating in Missouri territory, and had a 4,000-bbl. refinery, five bulk plants, and 210 filling stations. The Lubrite refinery has been modernized and enlarged by the addition of two Pratt vapor-phase units for the production of antiknock motor fuels to provide a sufficient output of gasoline for the company's retail stations.

Rumors of a pending consolidation of Vacuum Oil Co. and Standard Oil Co. of New York were confirmed on February 21 last when it was officially announced that basis for uniting the properties of Vacuum and Socony under the name of General Petroleum Corp. had been agreed upon by the boards of the companies. General Petroleum Corp. would acquire all of the assets of Standard Oil Co. of New York and Vacuum Oil Co. through exchange of stock. Two subsidiary corporations would be formed, known as Standard Oil Co. of New York, Inc., and Vacuum Oil Co., Inc., which would carry on the business of the respective companies under present management, thus perpetuating the values of the trademarks and corporate names. The board of directors of General Petroleum was to be made up of an equal number from the directorates of the two companies.

The Department of Justice on March 24, 1930, filed suit in federal court in St. Louis to test the validity of the contemplated merger. Final decision is looked for within the next several months.

Meanwhile Vacuum has gone forward with its plans for expansion of operations, both in domestic markets and in its operations abroad. Its refineries at Olean, N. Y., and Paulsboro, N. J., have been thoroughly modernized, and are currently capable of handling 22,000 bbls. of crude petroleum. Compounding and finishing plants are operated at Bayonne, N. J., and Rochester, N. Y.

The company is broadening its foreign operations and has a number of important foreign refinery projects under way. Contracts have been closed for four foreign refineries, to be located at Budapest, Hungary; Hamburg, Germany; Kolin, Czechoslovakia, and Czechowice, Poland, and it is reported the company will also establish a modern refinery in France.

Vacuum Investing Corp., a wholly owned subsidiary of Vacuum Oil Co., has a substantial stock ownership in a number of chain filling station corporations operating principally in Pennsylvania, Ohio, Missouri, Indiana, Illinois, Michigan, Wisconsin and Iowa, and it is expected that future expansion of domestic marketing operations will be carried out through this subsidiary.

OPEN FLOW AND PERMITTED PULL ON MONROE-RICHLAND PRODUCERS

By D. H. Bancroft

SHREVEPORT, La., Dec. 15.—Figures showing the total open flow and the permitted pull on the 1,008 wells actually producing in the Monroe and Richland Parish gas fields as of October 1, the date of the last regauge, are interesting. Especially so in comparison with the regauges of March 1 this year and October 1, 1929, as shown in the accompanying table. These regauges are made twice a year as a conservation measure for the purpose of determining to what extent wells may be drawn upon and preventing their prematurely being pulled into salt water. This permissible withdrawal is fixed by two factors under rulings of the state conservation department: "Area of the tract from which the particular well is to pull, the center of which is the location of the well" and rock pressures. Also, "where percentages listed (of open flow capacity reduce the allowed daily withdrawal below 1,000,000 feet per day) 1,000,000 feet may be taken provided a working pressure of one-half the closed pressure is maintained. When a tract of less than five acres has one producing well on it there may be taken from such well no more than 7 per cent of its open flow capacity."

These last two regulations are quoted for the reason that they cover cases responsible for the showing in the accompanying table that with the total open flow shown by the October regauge less than that of the March 1 report, apparently a larger withdrawal is permitted. Such, however, is not the case, department authorities state, for the reason that many of the wells shown in the report as being allowed a maximum of 7,000,000 feet per week (the 1,000,000 feet per day referred to) they will not produce that much.

Total open flow of the Monroe Field as of last October 1 is 4,361,414,000 feet per day from 808 wells gauged and that of Richland 4,147,060,000 feet from 200 wells, a total of 8,508,474,000 feet from 1,008 wells. Of this, 1,080,989,285 feet may be taken from Monroe and 656,516,143 feet from Richland, a total of 1,737,405,428 feet. The actual withdrawal from the two fields has averaged slightly more than one-third this amount, leaving a reserve of 1,134,063,859 feet per day before they are drawn upon to the limit of their capacity. The recoverable underground reserve remaining in the Monroe Field has been estimated by a well-known engineering firm, which completed a survey of the two fields not long ago, as between 2,000,000,000,000 and 3,000,000,000,000 feet; that of the Richland Field at from 500,000,000,000 to 1,000,000,000,000 feet. So, even at a withdrawal of 1,750,000,000 feet per day it will be quite a while before consumers in the 10 states supplied from the two fields need worry about depletion.

Consumption of carbon black plants for the first eight months of this year has averaged 249,621,399 feet per day with an average recovery of one pound of black per 1,000 feet of gas. This is a considerable reduction in consumption for this purpose. The biennial report of the department for 1928 stated consumption of gas for carbon making amounted to two-thirds of the total production, while in 1930 it had declined to one-half. Practically all the plants are in the Monroe Field and many that were operating there two or three years ago have moved to Texas or reduced the number of units operated. Consumption by the nine trunk pipe lines leading from the fields for domestic and industrial consumption for the first eight months of the year averaged 353,720,170 feet, making the total consumption for all purposes 603,341,659 feet, against a total permissible pull of 1,737,405,428 feet.

Before the gas may be burned for carbon, it must be processed for its gasoline content and all pipe lines transporting gas also operate natural gasoline plants. There are 19 such plants operating in the two fields, 4 of them in Richland and the other 15 scattered in Morehouse and Ouachita Parish divisions of the Monroe Field. In the Monroe Field gasoline recovery averages 350 gallons per 1,000,000 feet. Richland gas is somewhat richer and the recovery averages 450 gallons. An average recovery of 400 gallons from the two fields shows a recovery of approximately 88,430 gallons from gas going to pipe lines and 71,750 gallons recovered from gas going to carbon plants, a total of 159,750 gallons. Since, however, some of the Monroe gas is not burned for carbon, there is an overlapping which would reduce this estimate of total recovery from the two fields.

Data on average pressures and total recovery in the Monroe Field since its development began in 1917 are not available. While pressures naturally are much below what they were, the latest regauge shows numerous instances of slight increases. Richland, since its commercial history began, has produced 113,000,000,000 feet and average pressures have decreased from 1,100 pounds to 611 pounds. However, the engineers referred to above are of the opinion that were weighted average of the 196 wells gauged taken it would show a higher figure for the reason that several crater wells have sent pressure in their localities way down and that in the northern part of the field acreage is more sparsely drilled.

NEW OIL TARIFF BILL

WASHINGTON, D. C., Dec. 15.—Representative Sproul (Rep.) of Sedan, Kans., introduced a bill (H.R. 14,814) providing import duties on crude petroleum and its refined products imported into the United States. The bill reads:

Be it enacted, etc., that there shall be levied, paid and collected upon all crude petroleum coming into the United States from foreign countries a duty of $1.25 per barrel of 42 gallons, and upon fuel oil, a by-product from the refining of crude petroleum, the sum of 50 cents per barrel of 42 gallons; upon gasoline, kerosene, gas oils, motor oils, lubricating oils, hard oils and all other by-products produced by or resulting from the refining of crude petroleum 50 per cent ad valorem duties; provided, however, that crude petroleum may be imported free of duty into the United States for refining purposes only when the products therefrom are to be exported for market in foreign countries.

TOTAL OPEN FLOW AND ALLOWED PULL MONROE AND RICHLAND GAS FIELDS—LOUISIANA CONSERVATION DEPARTMENT REGAUGE REPORTS OCTOBER 1, 1930, MARCH 1, 1930, AND OCTOBER 1, 1929

	Open Flow					
	Oct. 1, 1930		Mar. 1, 1930		Oct. 1, 1929	
Parish—	Feet	No. wells	Feet	No. wells	Feet	No. wells
Morehouse	1,460,719,000	211	1,791,679,000	210	1,214,732,000	184
Ouachita	1,972,276,000	475	2,218,245,000	468	1,746,386,000	407
Union	928,419,000	122	1,016,565,000	120	882,425,000	83
Total Monroe	4,361,414,000	808	5,026,489,000	798	3,843,543,000	674
Richland	4,147,060,000	200	5,713,881,000	198	3,602,862,000	115
Monroe-Richland	8,508,474,000	1,008	10,740,370,000	996	7,446,405,000	789
	Allowed Withdrawal					
Morehouse	350,406,143	211	324,333,000	210	292,256,571	184
Ouachita	902,220,143	475	570,107,571	468	537,935,429	407
Union	194,069,714	122	186,548,714	120	173,047,714	83
Total Monroe	1,446,696,000	808	1,080,989,285	798	1,003,239,774	674
Richland	976,653,914	200	656,516,143	198	534,179,429	115
Monroe-Richland	2,423,349,914	1,008	1,737,405,428	996	1,537,419,203	789

NEW PUBLICATION ON PETROLEUM IN GERMANY

Review by Ed. Bloesch
Consulting Geologist, Tulsa, Okla.

In "Petroleum in Germany," a book of 76 pages with nine illustrations and four plates, the author, Fred S. Baumann, gives a very good concise description of the German oil industry especially of the producing branch.

In the first chapter we learn that the German consumption of gasoline is increasing fast and that the number of motor vehicles, which was nearly 1,000,000 in 1929 is expected to increase considerably. Some benzol is used, but most of the petroleum products are imported, because the German oil production passed only last year the 100,000-ton mark (about 7½ bbls. to the ton). Nearly half the imports come from the United States with Venezuela second and Russia third. Manufacture of gasoline from coal hardly reached 100,000 tons due to complication and high cost of the process.

Chapter two tells of the three German oil provinces: North Germany, the upper Rhine Valley and Bavaria, of which only the first has commercial production, associated with salt domes. Commercial production in Germany began in 1880, reached a peak in 1908, declined until 1920 and has now exceeded the former high. Up to the end of 1929 Germany produced a total of 2,034,000,000 tons with a value of $35,000,000 at the wells. In the four main producing districts a total of 3,200 tests have been drilled of which 30 per cent were dry holes. This is a good record for salt dome production. The average depth of these holes has been less than 600 feet.

Chapter three is a short outline of the formation of oil pools.

Chapter four describes northwest Germany. The geological section consists of Permian, Triasique, Jurassique, Cretacious, Tertiary and Quaternary, which are all producing except the first one. Oil accumulation is known on salt domes and anticlines just as in the Gulf Coast. Most of the salt domes are elongated, overthrusts are present and faults are numerous. As most of the area is covered with glacial drift, geological exploration has to depend largely on information from mines and drill holes and on geophysical methods. The present fields were discovered by drilling near seepages. The development was slow and haphazard until recently scientific methods have given good results. The Wietze Field (described by the reviewer in his paper on Oil Mining, American Association of Petroleum Geologists, Bulletin 10) produced about 360,000 bbls. in 1929 of which more than half came from the mine. There are now two shafts about 800 feet deep. The oil field of Haenigsen also produces from sands tilted up at the edge of a salt dome. The first commercial wells were drilled in 1900. There were only small shallow wells until in 1922 a flowing well was completed at 1,700 feet, which produced 112,000 bbls. in 4½ years. In 1925 a 2,600-foot well produced 300 bbls. a day for quite a while. The field produced 330,000 bbls. in 1929. The Oberg Field is producing partly from a salt dome, partly from a nearby anticline. Most of the wells are small and shallow. Lately wells as deep as 2,000 feet have furnished good results. The Oelheim Field is also located on a salt dome. As early as 1881 gusher production was obtained at less than 300 feet, but salt water soon interfered, and the production declined. Last year the field was revived by deeper drilling. The author lists 43 known salt domes in northwest Germany, most of which have not been tested. Salt domes and oil showings are also known farther north in Holstein and there seem to be chances as far east as Berlin. Outside of oil production there are also several asphalt mines in Hanover.

In chapter five oil indications in the territory north of the Alps from Geneva, Switzerland through Bavaria into Tschechoslovakia are mentioned. In Bavaria near Tegernsee a few wells produced light oil but not in commercial quantities. The upper Rhine Valley has one important field at Pechelbronn in Alsace. Conditions on the German side are thought to be similar and a small number of tests drilled have shown indications of oil.

Chapter six mentions operating methods. The Canadian percussion system has largely been used. Hollow rods have been introduced, which allow water circulation. Rotary drilling was first tried in 1927 and will probably be used extensively. Underground mining is at present done only at Wietze. Casinghead gas is only partly used and the natural gas industry is in its infancy. One gas well has furnished $2,500,000 worth of gas to the city of Hamburg.

Chapter seven says that most of the 30 refineries in Germany refine crude gasoline. One refinery has a cracking plant. Three refineries are owned at least partly by American interests. The quality of the oil from different fields and from different sands varies considerably. Most of the oil is heavy and rich in lubricants.

In chapter eight the tariff on different oil products is mentioned. It was raised considerably in April, 1930, particularly as a means to increase revenues but at same time to protect the Germany industry. In chapter nine we learn that in Prussia the oil belongs to the land owner, while in the other states a government concession is necessary.

In the last chapter attention is called to the fact that scientific methods and deep drilling have recently been very successful and that considerable good production is likely to be developed in Germany. Appendices give information about producing companies, the Prussian oil laws and a lease form.

STEAU ROMANA EXPANDS ALL ITS OPERATIONS

Steau Romana S. A., one of the principal producing and refining companies operating in Rumania, substantially widened its operations during 1929, according to the annual report of the board of directors, recently issued.

During the year 1929 the company drilled a total of 61,585 meters, against 46,324 meters in 1928, an increase of more than 30 per cent. The company, since its inception, has drilled more than 310,000 meters, approximately 20 per cent of the total drilled for oil by all companies in Rumania.

Total output of crude by the company during 1929 aggregated 829,986 tons, a gain of more than 25 per cent over the 652,287 tons produced during the previous year. Considerable natural gas was produced, this being used in field and refinery operations.

Steau during 1929 conducted considerable production of "mining," these pits having reached depths of approximately 174 meters. These pits, with those already operated in the old Sarata region, yielded 5,407 tons of crude during 1929.

Refineries of Steau Romana, located at Moinesti and Campina, treated 893,744 tons of crude oil last year, this comprising almost 20 per cent of the Rumanian total of 4,647,560 tons handled in Rumania during 1929. The Campina refinery produced a total of 788,576 tons of refined products for the past year, with the Moinesti plant turning out 64,683 tons of refined products for the year. Total output of these two refineries comprised 147,000 tons of benzine, 268,628 tons of mazout, 120,412 tons of gas oil, 35,289 tons of lubricating oils, 20,700 tons of white spirit, and 168,000 tons of refined oil and distillates.

DELAY PLANT CONSTRUCTION

NEW YORK, Dec. 13.—The president of Uruguay has held up a bill prepared by the National Administrative Council, providing for the creation of a state-owned petroleum refinery.

The bill was withheld by the president on the ground that the administration was not satisfied that the commercial profits to be derived from such a refinery would be sufficient to justify a departure from the policy that industrial undertakings, in general, fare better in private hands.

FORT WORTH GEOLOGISTS STUDY WOODBINE SAND

FORT WORTH, Tex., Dec. 13.—Sixty-three geologists of Texas and adjoining states met at the Texas Hotel, Fort Worth, for dinner and monthly meeting sponsored by the Fort Worth Geological Society. A review of the study of the Woodbine sand of East Texas, illustrated by camera slides and descriptive talk by E. C. Sargent, geologist of the Cosden Oil Co., supplemented by remarks by Dr. F. B. Plummer of the Bureau of Economic Geology of Texas, Austin, was the important feature of the meeting.

Doctor Plummer explained the five geological projects which had been mapped out two years ago, and remarked upon the progress made by various geologists and paleontologists who had been assigned to various details. The five projects and progress made are herewith noted:

A geological map of the West Central Texas and North Texas Pennsylvanian area was to be made. Sixteen county maps have already been drafted for the general map and others are now being worked on. Many of those completed have been distributed.

The second project was to be an investigation of oil sand and sediment, and mode of origin of sands which contain oil. Doctor Trowbridge of Iowa was assigned to this work, and Harry Bay has worked two years on it. Well logs were used in this work which consisted of experiments and studies being made of sands, how they were transported, and other features about them.

The third project was to be a correlation of the Pennsylvanian strata within the State and with other states. Doctor Plummer and Dr. E. H. Sellards of Austin have been studying and working on this problem.

The relation of plant life to the geologic formations in Texas was another project, and the botany department of the University of Texas offered its services in this work. Mr. and Mrs. Kyle of the university did much work on this report, which has been completed and submitted to the A.A.P.G. ready for distribution.

The fifth project was the study of underground water of the oil sands (hydrology of the oil sands). E. C. Sargent has made a detailed study of the Woodbine sands in East Central Texas, taken many temperature readings of oil tests and water wells in that district and studied the water from these wells in regard to the percentage of chlorides in the wells and the relation of the chlorides to faults and salt domes found in the district. In Mr. Sargent's illustrated talk he brought out that an increase in chlorides was found over faults, and especially over salt domes, and there was also an increase in temperature of the waters found in such localities. This finding will be especially helpful in locating areas and structures where surface and subsurface geology cannot be thoroughly worked. Slides depicting the East Central Texas district showed how producing oil pools followed the iso-chloride lines which had been established by the work done and experiments made on oil tests and water wells. Mr. Sargent pointed out that salinity tests were more easily and more quickly made than temperature tests, and more satisfactory according to his belief.

Doctor Plummer extended Mr. Sargent's talk by saying that a study will be made of the Trinity sands of East Central Texas, which will be interesting, principally due to the fact that the Trinity is of thicker content than the Woodbine sand, and that deeper drilling will be done in the Trinity than in the Woodbine.

John H. McCutcheon, who has been making temperature tests of wells in Oklahoma and Kansas, gave a brief description of his work, stating that he had taken 225 such tests during the past two years.

Dr. Virgil E. Barnes of the University of Wisconsin has been making such tests along the ridges of North Central Texas, putting in the past five months on this work in which time he has analyzed 94 samples and measured 28 wells, but has not yet gathered much detail of that district. Seven months are left in which Doctor Barnes hopes to complete his work in that district.

Doctor Plummer presided at the meeting which Dr. G. E. Condra, state geologist of Nebraska had intended attending, but due to pressing appointments at Lincoln had to leave Fort Worth the afternoon before the meeting.

Many of the geologists made a field trip on the following day, Sunday, to study the fossils found in localities west of Fort Worth. Doctor Plummer headed this party and Charles E. Yager, president of the Fort Worth society and Ford Bradish, consulting geologist, arranged transportation accommodations.

RAILROAD TRAFFIC LOSS TO BE SMALL THROUGH USE OF GASOLINE PIPE LINES

By A. E. Mockler
New York Bureau, The Oil and Gas Journal

NEW YORK, Dec. 15.—Notwithstanding the growing use of pipe lines for gasoline shipments railroads of the country will not lose their present gasoline traffic nor will tank car leasing companies suffer any substantial setback in volume of business because of proposed pipe lines, according to Ernest L. Nye, president of the National Steel Car Lines Co.

"After a careful analysis of the situation," said Mr. Nye, "I believe that tank car leasing companies will continue the steady growth which has marked their rise during the past 25 years and that the railroads at the very worst may be confronted with a gasoline traffic loss of not more than the normal average annual increase in the daily national gasoline consumption. Even this possible loss may carry compensation through increased long hauls on other petroleum products.

"The hue and cry regarding tank car movement now accompanying the idea of gasoline pipe lines also attended the inauguration of the crude oil pipe lines years ago, and at that time columns were written to prove that tank cars would certainly be supplanted in crude oil traffic. The record of the Union Tank Car Co. or of its predecessor corporations shows how warped these earlier predictions were. Union Tank Car Co. has always been the largest and most important operator of tank cars in the United States. In 1910 Union Tank Car had in operation 8,200 cars. Ten years later. in1920, its fleet consisted of 20,584 cars and in January, 1930, this number had grown to 34,130 cars.

"Here was a company of Standard Oil affiliation, whose management was in a position to have available the very best judgment regarding future conditions affecting tank car movement, and during the time of the greatest expansion of crude oil pipe lines, its fleet of tank cars increased over 100 per cent. The railroads themselves, according to the Railroad Age, from 1909 until 1929, while losing a substantial portion of the annual increase in crude oil movement, increased the actual volume of their crude oil movement due to the increased annual consumption, and in 1930, the number of railroad-owned tank cars exceeded the number of railroad-owned tank cars in 1920, despite the tremendous growth of the private lease line companies meanwhile and in the face of pipe line competition.

"A sane survey of facts discloses that during the past five years the average annual increase in the national consumption of gasoline has been approximately 100,000 bbls. daily. This is about the total capacity of all the gasoline pipe lines under construction and under projection. This still leaves the railroads with their present amount of business, assuming that these new gasoline pipe lines operate to capacity. Whether other important gasoline pipe lines will be projected in the near future is highly debatable because such construction involves, in addition to the technical problems of the operation itself, questions relating to the relocating of refineries and other major considerations. For example, it must be remembered that most of the leading oil companies now have tremendous investments in refineries located at such central points as Chicago and other large cities served by established crude oil lines. If gasoline is to be refined at, and shipped from, refineries to be relocated close to the actual production areas and piped into the large cities where refineries are now established, not only is the great cost of relocation a consideration, but there is the long haul on fuel oil, naphtha, kerosene and other products available to the railroads from the relocated refineries.

"Other factors pointing to the continued use of tank cars include the constantly increasing diversification of products carried. Tank cars carry cottonseed oil, molasses, acids of several kinds, glucose, turpentine, vegetable oils, milk, water, asphalt and many other liquid commodities. Gasoline movement represents but a part of the business available to the tank car companies. Despite gasoline pipe lines there will always be a steady movement of gasoline in tank cars from refineries to points of distribution which are too numerous to be served by any system of pipe line distribution."

EXPLORATION IN BRAZIL

In Bolivia the Bolivian Petroleum, Mining & Land Co., organized in July, is said to own or have options on 1,150,000 hectares near Cochabamba, where traces of oil have been found, and that the company expects to begin active exploration within six months.

VANCE WITH GLOBE REFINING

CHICAGO, Dec. 13.—George M. Vance, formerly with the Minneapolis office of the Independent Oil & Refining Co., has become connected with the Globe Oil & Refining Co. He is calling on the jobbing trade in the interest of the Ethyl Gasoline account of this organization.

STANDARD COMPLETES KETTLEMAN HILLS PLANT

(Continued from Page 137)

unit plan of operation which is now being worked out for the Kettleman Hills Field it is possible that little or no gas will be available for the operation of the Standard's No. 3 plant in the immediate future. As the field expands, however, the gas supplies will be adequate and it is expected that before the end of the year additional gas supplies will be needed.

DEATH OF W. J. GREGG

William J. Gregg, general counsel in Oklahoma for the Twin State Oil Co. and Sun Oil Co., died at his home in Tulsa, on Wednesday, December 10, following a heart attack. He was 66 years of age.

Judge Gregg was a veteran member of the bar in Indian Territory and later Oklahoma, and was prominent in the early history of statehood and the years just previous to the transition of Indian Territory into the State of Oklahoma. He had lived in Tulsa since 1905.

PRODUCTION IN ECUADOR

Preliminary figures place October petroleum production in Ecuador at 133,095 bbls. In Trinidad October output was 884,725 bbls., with crude oil exports of 119,521 bbls. and gasoline exports of 138,127 bbls. Exports of gasoline from the Netherland West Indies during October totaled 1,570,109 bbls.

DEMAND FOR OKLAHOMA CRUDE IN COMING YEAR

The Oklahoma State Proration Committee estimates that in order to maintain a balance between production of crude oil in Oklahoma and market demand in the first three months of 1931 crude output in the State must be cut to 506,095 bbls. in January, 506,440 bbls. in February and 500,010 bbls. in March. The committee estimated if no market can be found for production previously purchased by the Prairie Oil & Gas Co., market requirements for January would be 465,000 bbls.; for February, 469,000 bbls., and for March, 470,000 bbls. All figures are tentative.

Late Fields

(Continued from Page 40)

utes. The gas volume was estimated at 60,000,000 feet a day. The Wilcox sand was found at 6,365-6,536 feet.

The production from the Oklahoma City Field for the seven days ending December 16 was as follows:

Date—	Prod.	Wells prod.	Wells comp.
December 10	47,708	50	666
December 11	115,331	72	667
December 12	97,760	65	668
December 13	76,161	59	668
December 14	92,081	77	669
December 15	71,650	52	669
December 16	75,913	55	670

Century Petroleum Co.'s No. 1 Wheeler, SW cor. NW SE, Section 10-11-3w, on the west side of the Oklahoma City Field, blew in from a total depth in the Wilcox sand at 6,467 feet, estimated to be making 60,000 bbls. of oil and 40,000,000 feet of gas a day.

KANSAS

Austin Drilling Co.'s No. 1 Rockefellow, SE cor., Section 6-13-12w, a wildcat in Russell County, bailed 18 bbls. in three hours from the Oswald lime at 3,042-44 feet. The company will probably drill the test deeper.

W. C. McBride, Inc.'s No. 1 Whitwright, NE cor., Section 30-19-1w, in McPherson County, is the second deep sand producer in the area making 1,139 bbls. in 12 hours and 20 minutes. It offsets the Mid-Kansas Oil & Gas Co.'s No. 1 Garrett, in SW cor. NE, Section 30-19-1w, which was recently completed for 3,500 bbls. a day.

Central Commercial Oil Co.'s No. 1 Helms, SE cor. NE, Section 2-12-20w, found a hole full of water in the Silicious lime at a total depth of 3,320 feet. It may be abandoned.

The two wildcat tests in Gove County in the western part of the State were drilling. Atlantic Oil Producing Co. and others' No. 1 Wright, SE cor. NE, Section 11-12-27w, was drilling below 3,900 feet with nothing showing. Valerius & Boucher Oil Co.'s No. 1 Todd, NW cor., Section 24-13-27w, has resumed drilling at 4,470 feet.

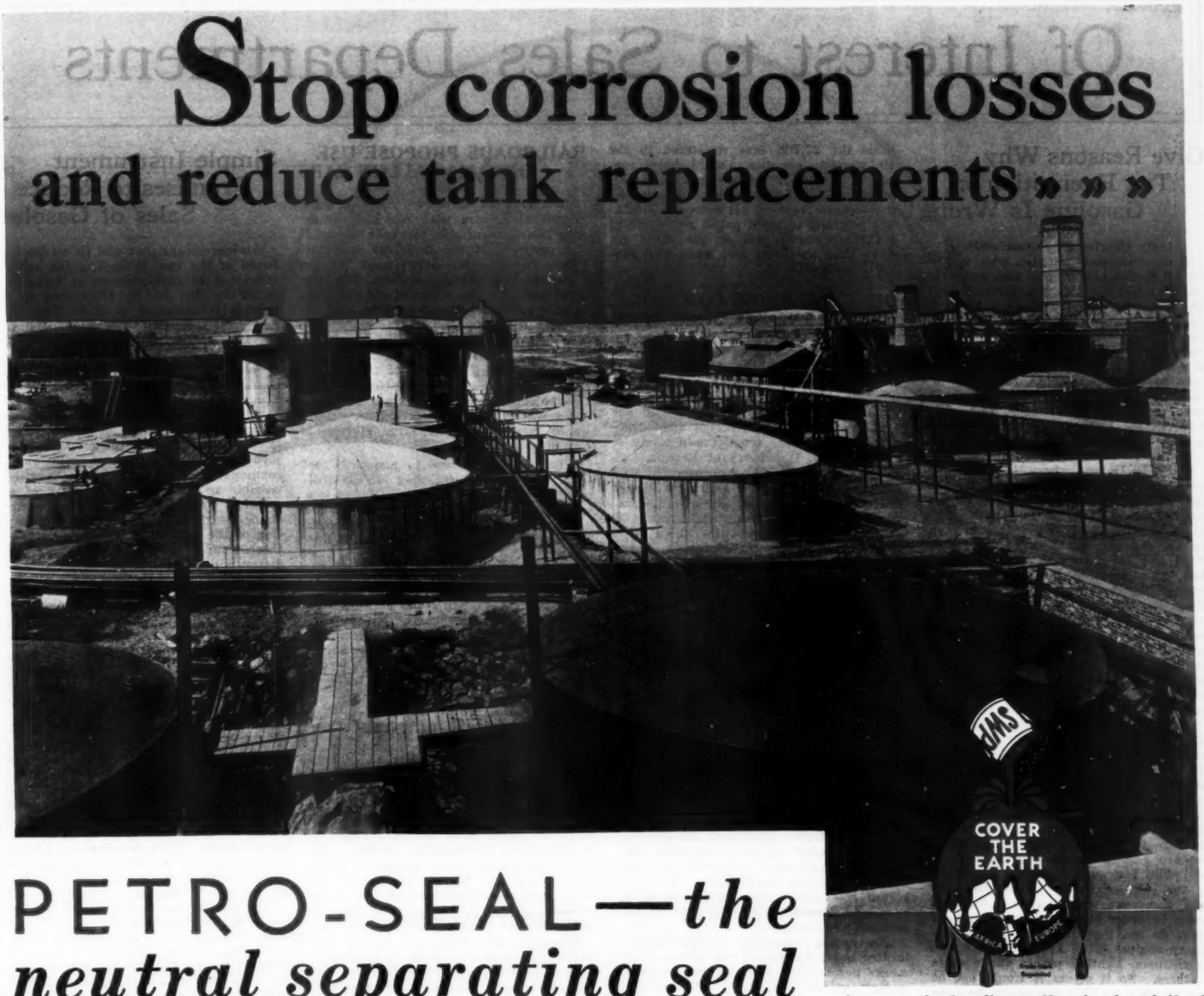
The Hyradulic Oil Co.'s No. 1 State Land, NW cor. SE, Section 22-34-43w, Morton County, is the most westerly wildcat test in the State and is within a few miles of the Colorado state line. The test is fishing for 5-inch casing at 3,450 feet.

Another gas well was added to the Decker gas field, McPherson County, when Graham Oil Co.'s No. 1 Robinson, in Section 10-19-2w, made 10,000,000 feet of gas in chat at 2,922-28 feet.

Magnolia Petroleum Co. and others' No. 1 Davies, SW cor., Section 17-27-2, Sedgwick County, the northernmost producer in the Eastborough Pool, was drilled deeper and increased its flow from 300 bbls. a day to an estimated 1,000 bbls. a day. The test was drilled from 2,977 feet to 2,987 feet, the present total depth.

In the Canton area in McPherson County, the Shell Petroleum Corp. has two tests nearing the deep pay horizon. No. 1 Lewis, NW cor. SE, Section 30-19-1w, was drilling at 3,410 feet, and No. 1 Anderson, SE cor. NW, Section 30-19-1w, was drilling in the Viola at 3,407 feet.

Stop corrosion losses and reduce tank replacements » » »



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One large oil company coated a panel with PETRO-SEAL and placed it in an agitator tank. After nine months, the coating was still intact—an unusually severe test. Another punched a five gallon bucket full of holes, coated the inside with PETRO-SEAL and let it dry over night, then filled the bucket with oil. The coating held for many months—proof of its tenacity and ability to insulate against corrosion.

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Of Interest to Sales Departments

Give Reasons Why Tax Exemption on Gasoline Is Wrong

By Charles M. Sutherland*

A western state senator who was re-elected visited Lincoln and announced that the first bill that he would introduce in the Nebraska legislature would be to exempt the western tractor users of gasoline from paying the gasoline tax. He was quoted as being in favor of an increase in gasoline tax but insisted upon an exemption for the farmers. Since the primary object of the gasoline tax was to raise money to build roads, this office does not see just exactly the reason for raising the tax and then exempting certain users.

In South Dakota where they have a 4-cent tax and exemption for agriculture use we find according to their reports that 25 per cent or 1 cent a gallon is returned in the form of exemptions making the net tax just 3 cents per gallon. When any legislature sees fit to go into class discrimination they endanger and weaken the law to which it applies. When it comes to paying school taxes, property taxes, and city taxes, there has been no discrimination as to whether or not the tax payers living within the city, the county, or State, or whether or not they had school children, but all paid the taxes according to the value of their property. We therefore think that it is a wise provision in the gasoline tax that we allow no exemptions except that which has been allowed by the courts, viz., gasoline furnished to governmental agencies and gasoline used for aviation in interstate transportation.

So when we begin to exempt certain classes of users we find that there are others besides farmers who run tractors who are gasoline users and do not use the public highways. Among this class are the railroads, with whom the highways compete; municipalities, business houses in every city in the State whose trucks do not leave the city limits, stationary engines of all kinds, motor boats, dry cleaners, lighting plants and a score of others. So it seems it would not be wise to open up this discussion because all taxes must be fair and equitable, and where exemptions are allowed this principle is disregarded.

Rural Demand

To be exact, this office has computed the gasoline consumption in 10 western counties, namely, Box Butte, Cheyenne, Deuel, Garden, Kimball, Perkins, Morrill, Keith, Scottsbluff and Sioux. This territory includes 11,468 square miles, and from east to west is over 200 miles long. These 10 counties in 1929 had 27,768 cars registered and paid tax on 19,893,177 gallons of gasoline which was only one-tenth of the whole consumption of the State. The distance from Omaha to the state line on the Lincoln Highway is about 507 miles. From North Platte west to the state highway is 188 miles. The distance from North Platte to Henry is 215 miles. The average consumption per registered car was 716 gallons. So when the paving program is perfected this area will embrace almost one-half of the paving cost.

On the other hand we took 10 eastern counties which included Adams, Douglas, Dodge, Gage, Hall, Jefferson, Lancaster, Madison, Saunders and Saline. These comprised 6,155 square miles and had a car registration of 136,726 and paid tax on 75,843,461 gallons of gasoline, about 40 per cent of the whole State. The average per registration was 554 gallons. The average per registration for the whole State is 528 gallons.

With the above state average as a basis the 27,768 cars registered in the 10 western counties should have consumed 14,661,508 gallons making a difference of 5,231,673 gallons consumed by the western tractors. It costs about $22,000 per mile to build paved roads. Will not the western part of the State get more than they pay for, when our paving is completed?

*Secretary of Nebraska Independent Oil Men's Association. Discussion appeared in association's weekly bulletin.

OIL COMPANIES CONTROL GASOLINE-ALCOHOL SALE

Private oil trading companies have obtained control of the Reichskraftsprit G.m.b.H. distributing organization for the gasoline-alcohol mixture known as Monopolin containing approximately 70 per cent gasoline and 30 per cent alcohol according to advices from Trade Commissioner W. T. Daugherty at Berlin.

The deal has been approved by the federal finance minister and gives 51 per cent control of R.K.S. to the large importing representatives of American and other foreign oil companies along with the Deutsche Gasolin A.G. (majority owned by the German dye trust) and the two benzol cartels. The other 49 per cent remains with the Federal Alcohol Monopoly.

The effect of this transaction is to assure the actual unloading of surplus alcohol stocks through the medium of Monopolin that have hitherto not been taken, despite the decree, effective in August, making compulsory a mixture of about 50,000 metric tons of alcohol with gasoline for the local automotive industry. The local companies, committed to take their quota of alcohol from the monopoly, have preferred to exercise their option of paying the monopoly for their commitment but not actually putting the alcohol on the market with gasoline mixture. The decree compelled the disposition of alcohol stocks amounting this year to 2½ per cent of motor fuel imported and produced domestically. This involved the 50,000 tons mentioned. Next year and thereafter this was to be increased progressively.

The trading companies covered their allocated quota by paying the monopoly 80 marks per hectoliter on account of their quota against certificate. It was optional, however, whether the alcohol was actually consumed or returned to the monopoly. In the latter case the trading company got a 15-mark rebate, and was thus assessed only 65 marks per hectoliter. Actually, this assessment, considering the amount and distribution of the alcohol involved, amounted to but 1.5 pfennigs per liter (about 1½ cents a gallon) in terms of gasoline or benzol entering the market. Even with the latest price reduction on the oil market in September the trading companies were apparently able to take this assessment and still profit. The monopoly retained the bulk of its alcohol and the potato growers, interested in expanding the market so that they could make better profits, were no better off.

Thus, while effecting the sale of more alcohol, overstocks of which are a drug on the market, the federal authorities retain sufficient interest in turnover of the R.K.S. to retain chairmanship of the R.K.S. supervising council. In the meantime there is a movement to propose an increase in alcohol production to 100 per cent capacity in 1930-31 against 80 per cent now being produced. The automobile industry has protested through its association, but the result is still uncertain.

WISCONSIN MEETING

On January 22 and 23 the Wisconsin Petroleum Association will hold its next annual equipment show. The exhibits and meeting will be held in the Pfister Hotel in Milwaukee.

RAILROADS PROPOSE USE OF 22,000-GALLON CARS

Refiners and marketers may be using 22,000-gallon cars with which to transport their products in the near future if the proposal of the tank car manufacturers is favorably acted upon by the American Railway Association. The new development is the result of the railroads seeking to reduce transportation costs on oil to a minimum and in this manner be in a better position to compete with the pipe lines. In many cases the larger cars can not be used because of the limited tankage available at the destination, but this objection would not apply in those cases where the oil is moving for export or to terminals where large storage is available.

The new cars would be about 48 feet long, compared with 35 feet for the ordinary type. The designers have found it a task to meet requirements of balance and other problems in their construction, but are said to have devised satisfactory plans.

About 40 per cent of the tank cars in use have a capacity of 10,000 gallons. Some roads have built tank cars of more than 12,500 gallons capacity, but, because of clearance requirements, have restricted their use to their own lines. The Santa Fe built tank cars of 16,000 gallons capacity and the Canadian Pacific cars of 14,500 gallons capacity.

FEWER OIL BURNERS

WASHINGTON, D. C., Dec. 13.—There was a decrease in the number of new orders for oil burners during the 10 months ending with October compared with the new orders received in the same period of 1929. New orders during the 10 months of 1929 totaled 71,220, dropping to 66,574 in the 10 months of 1930. Throughout the 10 months period of 1929 there were from two to five times as many unfilled orders on hand than in that period of 1930.

Shipments of oil burners during this 10 months period dropped from 69,753 in 1929 to 66,215 in 1930, most of the decrease being in August, September and October. In October, 1929, 15,037 oil burners were shipped by the manufacturers, while in October, 1930, 14,064 were shipped, a loss of nearly 1,000 burners shipped in one month.

An interesting feature of this report shows that foreign shipments, although small in number, did not lessen during 1930. In the 10 months of 1929 such shipments totaled 1,117 and in the same period of 1930 they showed exactly that number, in spite of the shipments to Canada dropping from 853 in 1929 to 470 in 1930—C. E. K.

MARKETING DIVISION MEETING

Announcement has been made that the first mid-year meeting of the American Petroleum Institute's Division of Marketing will be held in the Mayo Hotel at Tulsa, Okla., on May 12 and 13. This session follows by about a month the first mid-year meeting of the Division of Refining, which is to be held April 15 and 16 at St. Louis, Mo.

NORTHWEST MEETING

The annual convention of the Northwest Petroleum Association will be held in the Radisson Hotel in Minneapolis January 14 and 15. E. E. Hadlick, secretary of the association, has announced several speakers for the meetings, including H. S. Richey of the H. S. Richey & Co., who will talk on "This Problem of Merchadising." The annual banquet will be held in the evening, January 14.

Simple Instrument Promises to Reduce Sales of Gasoline

An instrument that will fit on the dash board of the car, indicating the relative efficiency of carburization is being perfected by Dr. M. R. Hutchison in his private laboratories in New York City and promises to effect a substantial fuel saving for the average car. The instrument essentially consists of a loop of platinum wire or a metal of similar characteristics, a tiny thermocouple and a milliammeter. The loop of wire is located along side of the exhaust line and is exposed to a stream of exhaust gases. Because platinum has the property of absorbing hydrocarbon gases with an accompanying generation of heat, it will be possible to indicate the rapidity of absorption by measuring the temperature change with a change in the concentration of the unburned gases. By using a thermocouple and a milliammeter the driver will be able to see completness of combustion of the gasoline under all driving conditions.

The instrument will facilitate carburetor adjustment to an exacting degree and will permit the driver to change his carburetor setting intelligently as the motor becomes heated, weather conditions change, different fuels are used, etc. In this respect the invention is not only viewed as a possible effective means of reducing gasoline consumption but a safety devices for airplanes. Doctor Hutchison planned the work as the result of losing a son in an airplane accident.

Trial flights, using this instrument will be made by Capt. Frank M. Hawks, chief of aviation for The Texas Company, in which he will calibrate the instrument to his motor. Then he plans to attempt to shatter his previous long distance speed records in the famous Texaco Plane 13, by simply making such adjustments of the carburetor during flight as suggested by the instrument.

Most important to the aviation industry is the faculty of the new device to increase pay loads by giving greater mileage to a gallon of fuel, Captain Hawks said. According to the figures compiled in six months' use in the Hutchison Fairchild plane, less than two-thirds the amount of fuel is required to travel a given distance with the instrument in use. As a consequence the other third may be left on the ground and its weight may be added to the revenue-producing load of the plane. In large planes, which burn about 270 gallons of fuel in a three-hour flight of 350 miles, this increase in pay load will run as high as 550 pounds, Captain Hawks said.

In a flight from New York to Memphis, Tenn., a distance of 950 miles, Captain Hawks used 119 gallons of gasoline, a substantial reduction compared to gasoline consumption on similar flights when the instrument was not used. The distance was made in 6 hours and 15 minutes exclusive of a stop at Nashville, Tenn.

INCREASES THROUGHPUT

Increasing consumption of refined products in Hungary was reflected in the increased throughput of Hungarian refineries in 1929, when a total of 952,791 bbls. of refined products was produced, as contrasted with 759,921 bbls. in 1928. Production of motor fuel in 1929 was 370,430 bbls., against 200,610 bbls. in the preceding year, while kerosene output increased from 335,343 bbls. in 1928 to 369,288 bbls. last year. Gas oil output in Hungary last year increased 9,035 bbls. over 1928 to 133,763 bbls., while production of lubricating oils increased 39,970 bbls. last year to a total of 79,310 bbls.

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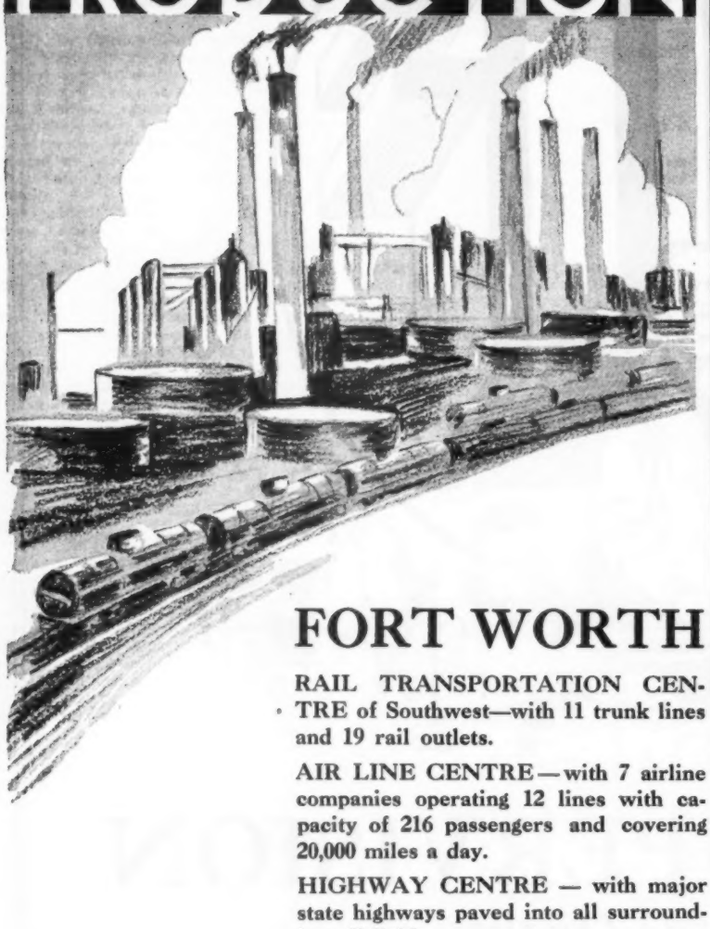

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19 RAIL OUTLETS

USE OF SUPERHEATED STEAM IN DRILLING

(Continued from Page 83)

5. By increasing the capacity, speed and flexibility of the drilling rig.

6. By increasing the life of the pumps, engines and boilers, due to better operating conditions.

7. By decreasing the weight of the boilers required to operate the rig.

8. By decreasing the amount of water required for boilers with corresponding reduction in scale formation.

9. By reducing the fuel consumption.

10. By increasing the boiler efficiency.

Most of these advantages can be determined theoretically or from experience in other industries. But in order to test in a practical way the use of superheated steam under actual drilling conditions, two boilers were built equipped with superheaters. The set-up was made as later described in detail so as to approach normal operations as far as possible.

The boilers were set up according to the common practice used in the Gulf Coast fields. This arrangement is shown in Figure 2. A 3-inch line connected the steam header of the saturated boilers to the rig. The boilers equipped with superheaters were set up in the same manner with a connection from their header which is in front of the boiler to the 3-inch line running to the rig. Valves were provided so that either set of boilers could be cut in or out at will without interfering with the operation of the rig. A manifold was provided between the boilers and the rig in which were installed connections for recording pressure, temperature, and the flow of steam from either set of boilers.

A second manifold as shown in Figure 3 was provided on the branch line going to the pump in which connections were made for measuring the steam consumption of the pump. Provisions were made for measuring the moisture and temperature of the steam at the boilers, engine and pumps. Steam gauges were provided to register the steam pressure at these points.

Water was ordinarily supplied to the boilers by means of injectors. The water was taken from a common source of supply, namely: two 250-bbl. tanks. A 6x4x6 duplex pump was provided for supplying feedwater in emergencies. No feedwater heaters were used.

Casinghead gas was used for fuel of approximately 1,400 B.t.u. quality. This gas was passed through a centrifugal scrubber to remove any oil or water carried over from the separator. The gas was measured by means of an orifice meter. The supply of gas to the boilers was controlled by means of the Doreco boiler governor on the superheater-equipped boilers, and by means of the Neilan-Schumacher spring type governor on the saturated-steam boilers.

Provision was made at the smoke box of the boilers for measuring the flue-gas temperatures and making flue-gas analyses.

The arrangement of the equipment and the location of the instruments are shown on Figures 2 and 3.

DRILLING EQUIPMENT

1. Engine—12"x12" Twin Ideal Ajax roller-bearing.
2. Pumps—two 12x6x16 Wilson-Snyder.
3. Rotary—20-inch Boykin.
4. Drawworks—Beaumont, four-post.
5. Swivel—Ideal, Type 6-A.
6. Traveling block—three-sheave Boykin.
7. Crown block—Baash-Ross.
8. Drill pipe—6-inch to 4,000 feet; 4-inch on down.
9. Hook—8-inch Ideal spring.
10. Water pump—Gardner-Denver 6x4x6.
11. Injectors—Penberthy.
12. Leeds and Northrup potentiometer and thermocouples 0°-2,000° F. for measuring all temperatures.
13. Hays Orsat flue-gas analyzer.
14. Ellison inclined draft gauge.
15. Ellison throttling (U-path) calorimeter.
16. Schaeffer and Budenberg separating calorimeter No. 1,601.
17. Ashcroft test pressure gauge — 0-300 pounds.
18. Brown recording pressure gauge—0-300 pounds. No. 85,549.
19. Cochrane flow meter. Orifice 2,885 hour diameter. 0-12,000 pounds per hour. Used to measure total steam flow.
20. Brown gas-actuated recording thermometer. 0-600 pounds. No. 85,736.
21. Chaplin-Fulton gas-pressure regulator. 0-600 pounds.
22. Pressure gauge. 0-100 pounds. High side of gas regulator.
23. Pressure gauge. 0-60 pounds. Low side of gas regulator.
24. Westcott orifice meter. No. 19,912. Static pressure 50 pounds. Differential 100 inches water. Used as gas meter. 1½-inch orifice.
25. Westcott orifice meter No. 29,731. Static pressure 500 pounds. Differential 100 inches. Used to measure steam flow to the pump. 2¾-inch orifice.
26. Foxboro recording pressure gauge. No. A-75,807. 0-1,000 pounds. Used to record fluid pressure put up by pump.
27. U.S. gauge. 0-1,000 pounds. Fluid pressure check.
28. Regular 0-300-pound boiler gauges.
29. 120° F. thermometer for feedwater temperature.
30. 0-60-pound gauge used for engine cylinder pressure.
31. Four 0-300-pound gauges.

It is to be noted that all the equipment used for drilling the well was identical throughout the test with the exception of the boilers and burners for the boilers which were used to provide the superheated and saturated steam, respectively. The specifications of the boilers is given in Table 1.

Method of Conducting Test

Since the purpose of the test was to obtain a comparison between superheated steam and saturated steam of the drilling operations, each set of boilers (two each) was operated for alternate periods of 24 hours throughout the duration of the test.

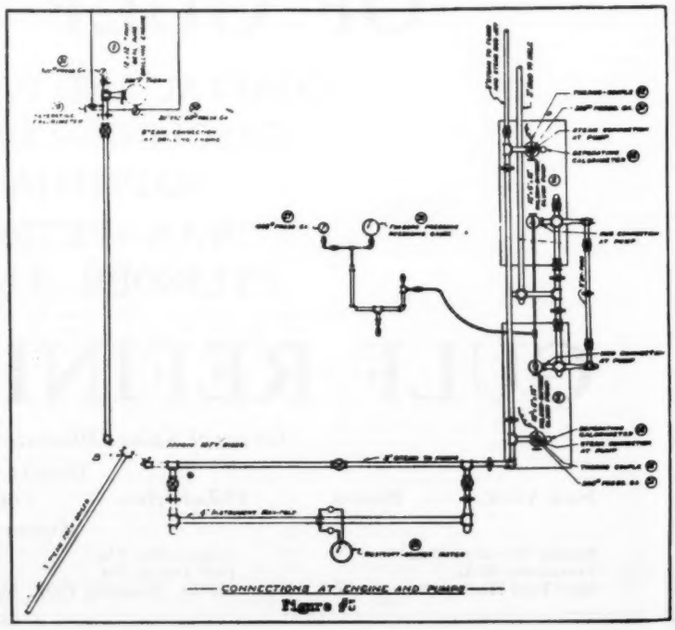


Figure 3

The test was started when the well was at a depth of approximately 1,800 feet and discontinued at a depth of approximately 4,000 feet. The test was carried on for 18 days to be sure of obtaining average drilling conditions at the well while both kinds of steam were supplied. Readings of steam pressure, temperature, speed, fluid pressure, moisture in steam, steam and fuel consumption, etc., were taken every half hour throughout the test.

In order to eliminate the advantage of steam pressure of one kind of steam over the other, the automatic fuel regulators were set to obtain the same pressure at the point of measuring the flow of steam on both sets of boilers.

The entire test was conducted under normal drilling conditions. Throughout the test period no interruption to the drilling operation was caused by running the test. The operation of the drilling rig and the firing of both sets of boilers were done by the regular drilling crew.

Completion of Data

Data on the boilers, engines and pumps and at the instrument manifold were collected at half-hour intervals throughout the run. The data collected are shown in the accompanying Tables 2, 3, 4 and 5.

Results on Pumps and Engines

It can be seen from the above data that the hydraulic horsepower developed, which can be used as a measure of the work done by the steam, was increased with a corresponding reduction in the steam consumption of the rig. Hence it is necessary to calculate the savings in fuel, water, and the increased capacity in terms of the work done to appraise the full benefit derived from the use of superheated steam.

From the foregoing table it is seen that the hydraulic horsepower of the pump increased 16.3 per cent when superheated

TABLE 1—COMPARATIVE DATA ON SUPERHEATER-EQUIPPED AND SATURATED STEAM BOILERS USED IN TEST

	Superheater equipped	Saturated steam
Type of boiler	Portable locomotive	Portable locomotive
Code	A.S.M.E.	A.S.M.E.
Rating—horsepower	65	90
Working pressure—pounds per square inch	180	200
Test pressure—pounds per square inch	270	300
Heating surface, evaporative—square feet	649	919
Furnace volume—cubic feet	74	86
Furnace volume per square feet heating surface—cubic feet	0.114	0.094
Number tubes—3-inch outside diameter	46	80
Number tubes—5-inch outside diameter	16	None
Length tubes—feet	12	14
Steam outlet—diameter, inches	3	4
Stack diameter—inches	25	25
Stack height—feet	32	28
Weight of complete boiler—pounds each	18,885	21,460
Burners used on boilers—low-pressure gas	Doreco	Perfecto

TABLE 2—DATA TAKEN AT BOILERS*

	Saturated steam	Superheated steam
Boiler steam:		
Pressure, pounds per square inch gauge	181	179
Temperature, degrees Fahrenheit	380	569
Superheat, degrees Fahrenheit	...	190
Moisture in steam—per cent	0.5	...
Fuel:		
Calorific value—B.t.u. per cubic feet	1,400	1,400
Fuel consumed—average cubic feet per hour	14,017	12,011
CO_2 in flue gas—per cent	10.0	8.0
Temperature flue gas—degrees Fahrenheit†	697	700
Draft at base of stack—inches of water	0.19	0.18
Feedwater temperature—degrees Fahrenheit	81	84

*Averages for 18 days.

†Saturated-steam boiler operated at average rating of 167 per cent and superheater-equipped boiler at average rating of 228 per cent.

TABLE 3—DATA TAKEN AT INSTRUMENT MANIFOLD COMMON TO BOTH SETS OF BOILERS*

	Saturated steam	Superheated steam
Steam flow—average pounds per hour	9,053	8,010
Steam pressure—pounds per square inch gauge	168	168
Steam temperature—degrees Fahrenheit	375	497
Superheat—degrees Fahrenheit	...	122

*Averages for 18 days.

TABLE 4—DATA TAKEN AT PUMP AND ENGINE*

	Saturated steam	Superheated steam
Steam pressure at pump—pounds per square inch	142	151
Loss in steam pressure between manifold and pump—pounds per square inch	26	17
Steam temperature—total degrees Fahrenheit	...	424
Superheat—degrees Fahrenheit	...	58
Moisture in steam—per cent	17	...
Radiation losses in pipe lines from boiler to pump—horsepower	39.3	18.2
Steam used by pump—pounds per hour	6,180	5,320
Per cent of total steam required used by the pump	68.3	66.4
Fluid pressure developed by pump—average	347	387
Pump speed—strokes per minute	57.4	60.4
Hydraulic output of pump—average horsepower developed	91.4	106.3
Water rate of pump—pounds per hydraulic horsepower-hour	67.6	50
Speed of engine—revolutions per minute	160	164
Back pressure in exhaust chest of pump—pounds per square inch	12	9

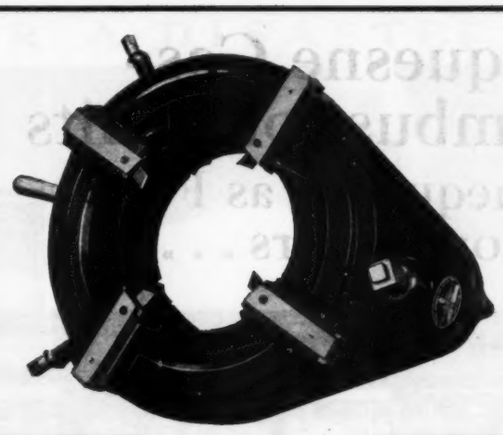
*Averages for 18 days.

The data thus obtained permit a comparison of the effects of the saturated and superheated steam upon the operation of the pumps and engines, the pressure drop and heat losses in the lines, and thermal efficiences of the boilers, and other points of interest.

TABLE 5—GENERAL NOTES ON TEST

	Saturated steam	Superheated steam
Horsepower of boilers—rated—total	184	130
Horsepower of boilers—developed—total	308	297
Per cent of rating	167	228
Pounds of water evaporated per hour per boiler	4,526.5	4,005
Pounds of water evaporated per hour per square foot heating surface	4.94	6.17
Cubic feet gas burned per hour per boiler	7,008.5	6,005.5
Furnace volume of boilers—cubic feet	86	74.4
Cubic feet gas burned per hour per cubic feet furace volume	81.5	80.7
Furnace volume per square foot heating surface—cubic feet	0.094	0.114
Furnace volume per horsepower developed—cubic feet	0.279	0.25
Calorific value of fuel per cubic feet—B.t.u.	1,400	1,400
Heat release per cubic feet furnace volume per hour—B.t.u.	114,000	112,980
Temperature flue gas—degrees Fahrenheit†	697	700
Temperature of steam at boiler pressure—degrees Fahrenheit	380	379
Temperature of steam leaving superheater—degrees Fahrenheit	...	569
Difference between steam and gas temperature—degrees Fahrenheit	317	131
Gas burned per horsepower hour developed—cubic feet	45.5	40.44
B.t.u. per boiler horsepower-hour developed—theoretical (1)	33,479	33,479
B.t.u. gas consumed per boiler horsepower-hour-cubic feet × heat value (2)	63,700	56,616
Boiler efficiency = (1) ÷ (2)	52.8	59.4

†Saturated boiler operated at average rating of 167 per cent and superheater equipped boiler at average rating of 228 per cent.



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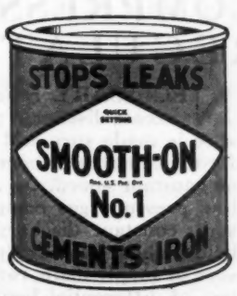

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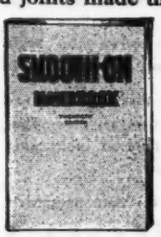

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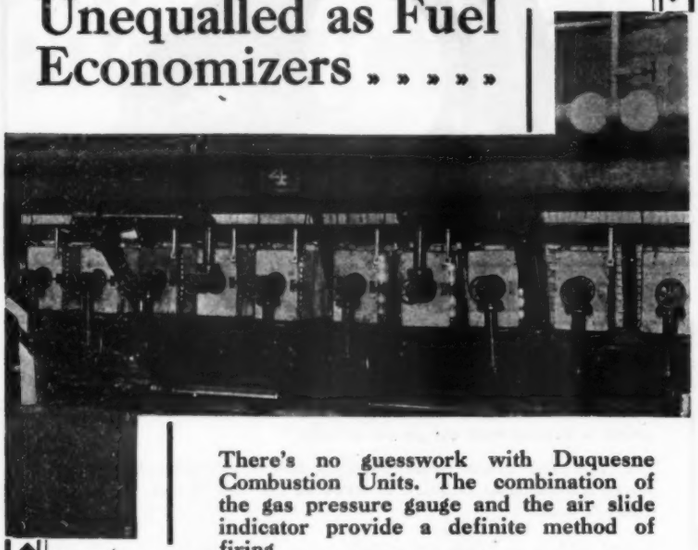

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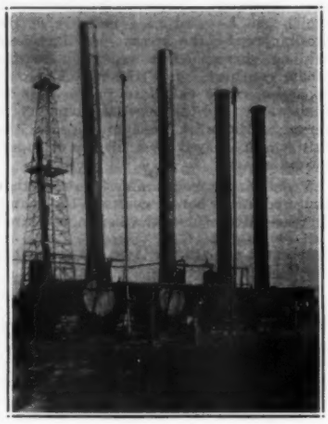
steam was used; hence: 9,053 × 1.163 = 10,528.64 pounds saturated steam to develop 106.3 horsepower.
8,010.00 pounds superheated steam to develop 106.3 horsepower.

2,518.64 pounds saving in steam, or a decrease of 23.9 per cent in the quantity of steam required for the same work done.

Figure 4 is a water-rate curve, plotted from the data taken on the pump for the different horsepower developed under changeable conditions. This curve indicates that as the fluid horsepower is decreased, the savings due to superheat increase rapidly. At a load of 60 hydraulic horsepower the water rate is reduced from 112 pounds of saturated steam per hour to 64 pounds, or a saving of 43 per cent.



Smokebox end of the boilers, showing superheater connections.

While the water rates may not be true figures, they are comparative since they were determined the same way for both kinds of steam. The hydraulic horsepower developed was figured from the speed, displacement, and pressure developed by the pump. Since there is bound to be some slippage of the pump, both steam rates per hydraulic horsepower should be increased 25 per cent or more to represent actual steam rates.

The question has often been raised how it is possible for there to be such a large saving in steam in a cylinder with superheated steam when no expansion takes place. It is because in uninsulated cylinders the heat radiation is so great. This can be seen from the curve. The slower the pump is running, the greater is the time per stroke or the time the steam is exposed to radiation or cooling.

Likewise, the starting of the piston to move in the opposite direction is a relative large part of the total time of the stroke. Hence a pump with a short stroke with saturated or superheated steam is less efficient than a long-stroke pump, all other things being equal.

Since there were no easy means of measuring the work done by the engine without interfering with the operations, no measurements were taken. Since the engine is a reciprocating type, taking steam for the full stroke, superheated steam would be expected to show an equal decrease in the quantity of steam required.

The speed of operation and flexibility were improved due to the elimination of moisture from the engine. The saturated steam contained 17 per cent of moisture, while the superheated steam still contained some 50 degrees superheat remaining in it at the engine. It was observed that it was necessary to pick up several more thribbles in low speed with saturated steam than with superheated steam. This reflects the improved operation of superheated steam.

Losses in Steam Lines

The steam line from the saturated boilers to the pumps consisted of 44 feet of 4-inch standard line pipe and 219 feet of 3-inch standard line pipe, together with twenty 90-degree angle fittings. The steam line to the engine consisted of 19 feet of 4-inch pipe together with thirteen 90-degree angle fittings.

The steam line from the superheater-equipped boilers to the pumps consisted of 50 feet of 4-inch standard line pipe and 244 feet of 3-inch standard line pipe, together with twenty-one 90-degree angle fittings. The steam line to the engine consisted of 25 feet of 4-inch pipe and 235 feet of 3-inch pipe, together with fourteen 90-degree angle fittings.

The lines would have been considerably shorter under normal operating conditions and would have contained less 90-degree angle fittings. The longer lines and increased number of fittings were necessary to install the manifolds for test purposes.

The radiation losses in the case of superheated steam amounted to 610,000 B.t.u. per hour and for saturated steam 1,350,000 B.t.u. per hour. These losses are equivalent to 18.2 boiler horsepower for the superheated steam and 39.3 boiler horsepower for the saturated steam.

The average pressure drop between the instruments on the manifolds at the boiler and the pump was 17 pounds for superheated steam and 26 pounds for saturated steam. This line consisted of 200 feet of 3-inch standard line pipe with eleven 90-degree angle fittings.

For safety reasons the use of superheated steam therefore permits the boilers to be placed at a greater distance from the rig for the same amount of heat and pressure losses. However, for maximum efficiency, the steam lines should be as short and as free of turns as possible.

Results Obtained on Boilers

No attempt was made to conduct an accurate thermal efficiency test on the boilers, but readings of the fuel consumption, steam output, flue gas and feed-

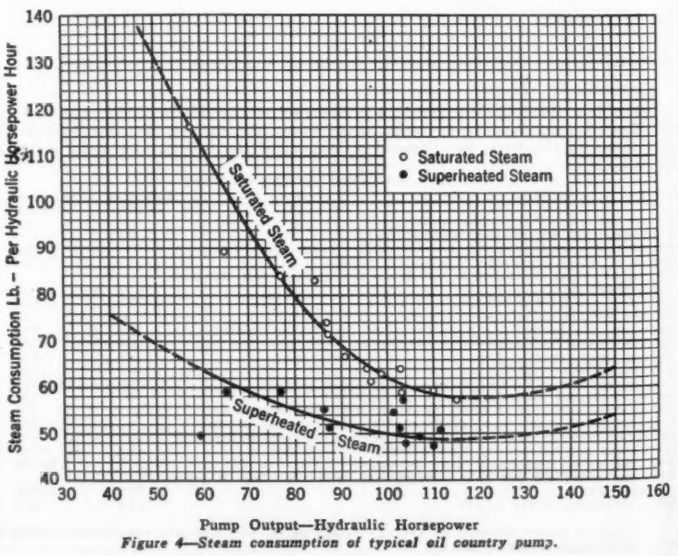


Figure 4—Steam consumption of typical oil country pump.

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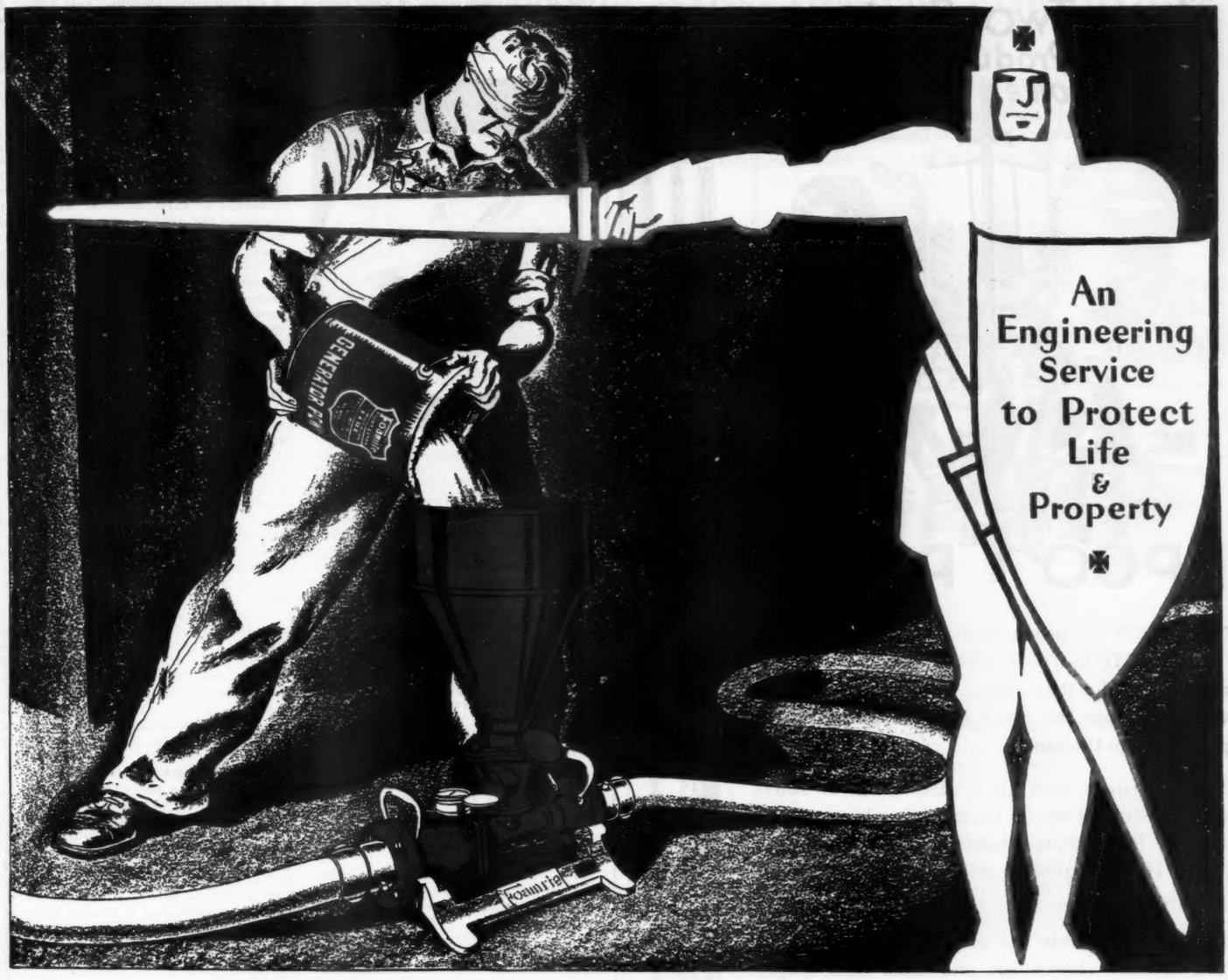

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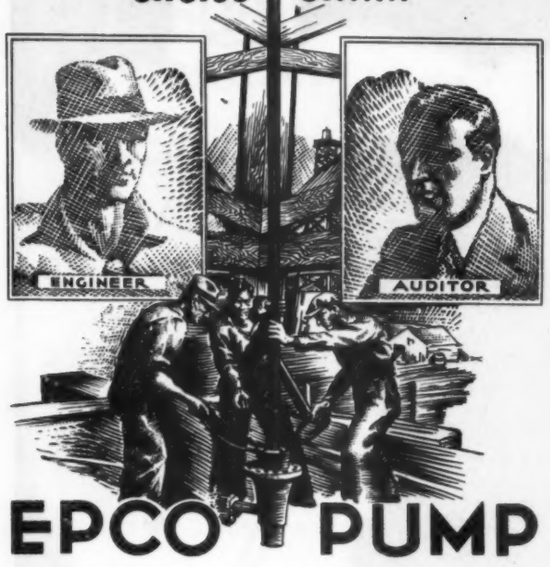

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water temperatures, were taken periodically. The saturated-steam boilers operated at an average output of 9,053 pounds of steam per hour or 308 horsepower, which is 167 per cent of their rated (92 horsepower) capacity. The superheated

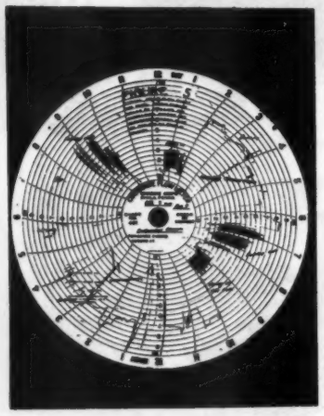

Figure 5—Typical steam flow chart for total saturated steam requirements of the rig. The variations in steam demand for the various operations on the rig are indicated.

equipped boilers were operated at an average output of 8,010 pounds per hour or 297 horsepower, which is 228 per cent of their rated (65 horsepower) capacity. At these average operating conditions, the flue-gas temperatures for the saturated and superheater-equipped boilers were 697° and 700° F., respectively.

From the data it can be seen that the fuel required to operate the rig with saturated steam was 14,017 cubic feet per hour, while with superheated steam only 12,011 cubic feet were required to operate the rig at 16.3 per cent increased capacity; hence: 14,017 × 1.163 =

16,301 cubic feet required to do same work with saturated steam.
12,011 cubic feet required to do same work with superheated steam.

4,290 cubic feet fuel saving per hour, equivalent to 26.3 per cent in fuel for same work done.

From the data it can be seen that the average steam required to operate the rig with saturated steam was 9,053 pounds per hour. With superheated steam it was 8,010 pounds per hour. Since the steam used is equivalent to the water evaporated, the saving in water consumption can be calculated as follows: 9,053 × 1.163 =

10,528 pounds water evaporated to do same work with saturated steam.
8,010 pounds water (when superheated steam used).

2,518 pounds water saving, or a decrease of 23.9 per cent in the quantity of water required.

Since scale formation is directly in proportion to the water evaporated, it can be said that there is a reduction of 23.9 per cent in the scale deposit.

The overall thermal efficiencies of the saturated and superheater equipped boilers were 52.8 per cent and 59.4 per cent respectively. The saturated boilers had previously been used to drill 9,100 feet of hole and the superheater-equipped boilers had been used to drill 4,000 feet of hole. On a preliminary test these two superheater-equipped boilers developed 393 horsepower under maximum firing conditions and without consideration of efficiency. This represents 325 per cent of the rating.

With the reduction in water evaporated to operate the rig, it is obvious that the scale deposit in the boiler is reduced a corresponding amount. This results in less foaming of the boiler and decreases the amount of blowdown on the boiler.

Since less steam is required for drilling and more pressure is developed by the mud pump by the same steam pressure when using superheated steam, it is apparent that smaller boilers can be used to perform the work required. This will reduce the difficulty and cost of transporting the boiler in the field, and also reduce the working pressure of the boiler. The superheater-equipped boilers were unloaded at three different locations in running the preliminary test and fuel test. In transporting them, due to bad roads, they were thrown off the trucks on one trip. During transportation, the superheaters were not removed from the boilers. No leaks or other mechanical troubles developed in the superheaters, although the boilers did leak somewhat. This leakage in the boiler was probably due to excess operating pressures when attempting to carry the load at the preliminary test location. This indicates that no trouble in transportation is to be expected with superheater-equipped boilers.

The elimination of excessive moisture by the superheated steam from engine and pump and better lubrication indicated that the life of this equipment would be longer than with saturated steam. The decrease in scaling troubles of the boilers will increase the life of the tubes and the entire boiler. Lower operating pressures will have the same effect.

It can be seen from the data taken that the capacity of the rig is increased 16.3 per cent by the use of superheated steam. This will result in decreased drilling time in drilling wells. With more holes drilled per rig, the entire investment in drilling equipment can be reduced. When drilling offset wells, the increased capacity due to superheated steam is particularly advantageous.

Operating Conditions

Neither of the firemen at the well on which the preliminary test was run, or when conducting the regular test, experienced any difficulty in operating superheater boilers. They seemed well satisfied with them. Superheater-equipped boilers are fired in exactly the same manner as saturated steam boilers except that when firing up, a bleeder at outlet of the superheater must be left open to permit passage of sufficient steam to protect the superheaters until they are put on the line.

No difficulties of any nature were encountered in operating the rig. No special knowledge is required of the operators in using superheated steam. It is to be noted, however, a good grade of high-flash lubricating oil should be used for the engine and the pump. With superheater-equipped boilers the steam header is across the front of the boiler. When injectors are used to supply the feed water, a small saturated steam header is required from the dome of the boiler as injectors do not operate as readily on superheated steam.

The superheater is of simple construction consisting of two steam headers and units inserted in large flues in the boiler. These units are clamped to the headers with a ball joint held in place by one bolt. To replace a unit it is only necessary to open one bolt to make the change. Only two types of units are required so the investment in replacements and number of parts necessary to stock is small.

As pointed out, no mechanical troubles were encountered in the use of the superheaters. The superheat obtained was as high at the end of the run as at

TABLE 6

Type boiler—	Superheater		Saturated	
Rated horsepower	110	110	125	125
Number of boilers to the rig	3	3	3	3
Steam pressure	265	220	355	330
Flue gas temperature °F.	640	635	910	870
Pump speed cycles per minute	60	60	60	57

TABLE 7—COMPARISON OF WEIGHT OF BOILERS PER BATTERY TO TRANSPORT

Weight of 4 350-pound, 125 horsepower saturated boilers	135,064 pounds
Weight of 3 250-pound, 125 horsepower superheater-equipped boilers	94,419 pounds
Less weight to be transported per well drilled	40,645 pounds
Reduction in per cent in favor of superheaters	30%

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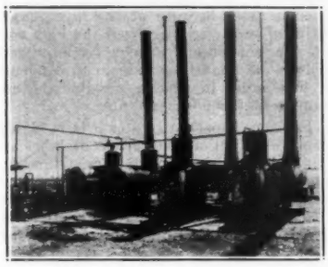
the start of the preliminary run. This indicates that the units are remaining clean. In view of this, no trouble is anticipated in the life of the equipment.

It is to be pointed out that the large flues containing the superheater units cannot be swabbed out as readily as the regular tubes. This does not seem to present a serious disadvantage as they can be readily cleaned with a steam lance.

Boilers equipped with superheaters do not contain as much heating surface as saturated boilers of the same size due to the large flues necessary to accommodate the superheater units. However, the increase in boiler efficiency and capacity of drilling rig, as shown in this report, indicate that this is not a disadvantage.

It can be seen from the results of this test that the use of superheated steam



Front of superheater equipped and saturated steam boilers used on test.

gives a remarkable improvement in the operation of all the major equipment on the drilling rig. It can be seen that in addition to the fuel and water saving that can be made, the increased capacity of all the equipment without increased weight, the increased life due to better operation, increased speed of drilling and flexibility, due to superheating offer many decided advantages.

After this test was made, boilers equipped with superheaters were introduced into Oklahoma and additional results are now obtainable. It is interesting to compare the operation given in Table 6 on rigs using the same pumps and engines but using saturated and superheater boilers, all operating at approximately same depth of hole.

The burners used on these four rigs were the same so that the flue gas temperature is a good indication of how much harder it is necessary to fire a saturated boiler to run the rig on an equal basis. These saturated rigs were typical of all the boilers used in the Oklahoma City Field.

Operating the rigs with lower steam pressure is an important factor in the life of the boiler. The question is sometimes raised why the speed of the pump can be maintained with lower steam pressure when operating with superheated steam. Due to the excessive condensation taking place in an uninsulated cylinder the effective cylinder pressure required is not built up as fast with saturated steam as with superheated steam. Consequently a higher line or boiler pressure is required to effect the required cylinder pressure with saturated steam.

When some operators saw the advantage of the superheated steam at 250 pounds pressure, their first reaction was to increase the pressure to improve further their operation. They found little advantage for once the effective pressure required was met, any further pressure only increased it slightly due to the higher total steam temperature.

In the Oklahoma City fields it is quite common to see batteries of four 125 horsepower 350-pound pressure saturated steam boilers operating a rig. If the results of the test are considered it can be seen that three superheater-equipped boilers would not have to be operated at any higher rating than the four saturated boilers to run the rig.

The following comparison of weight of boilers given in Table 7, to be transported from one location to another shows a decided advantage of the more efficient power plant.

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during their life so that this saving in transportation charges is saved many times over. When one boiler is eliminated from a battery it is not only the boiler that is saved. All the auxiliary equipment such as burners, blow-off valves, pop valves, check valves and gauges are eliminated from the first cost as well as the cost of replacement, installation and transportation.

By reducing the quantity of steam required, thereby reducing the water consumption, the equipment serving the boiler plant, such as feed water pumps, condensers, feed water heaters, fuel regulators, etc., can be smaller, thereby reducing the investment in this equipment.

The use of condensers to supply pure water to the boilers offers a big improvement by the elimination of scale. Yet condensers are not economical except in special cases because of the large quantities of water required and the high cost of the condensers. Since superheaters reduce the quantity of steam to condense it will assist in making possible the advantages of condensed water.

In using superheated steam it is highly important that a good grade of lubricating oil be used in the cylinders. Furthermore, greater care must be exercised to see that the lubricators are kept filled at all times. When operating with wet steam, operation without lubrication for short periods may not harm the cylinder walls because the moisture acts as a partial lubricant. This is not the case, however, with dry steam which has no lubricating properties. However, with the improved lubrication due to dry steam, the life of the cylinders will be greatly increased.

In pumps and engines using piston-type valves no difficulty has been experienced when operating at total steam temperature of 550° F. With slide-valve equipment such as is used in California no troubles will be encountered with total steam temperature of 500° F. With the improvement in metals that are now used on pumps and engines for oil country practice, these temperatures can even be exceeded without any harm to the equipment.

Since the condensation in uninsulated cylinders is great, it is necessary to have from 100° F. to 150° F. of superheat at the cylinder to overcome the losses and secure the fullest benefit from the superheater. This, together with the line losses, make it essential to start with from 200° F. to 250° F. of superheat at the boiler plant.

In California in one field which is very mountainous, where very long steam lines are used, a separately fired superheater has been tried. The purpose there has been to furnish practically dry steam at the rig but no superheat in the engine and pumps. With covered lines this does not require a high degree of superheat and 100° of superheat has proven satisfactory in most cases. While this method reduces the load on the boilers equivalent to the line losses, the use of an additional 100° F. of superheat would improve the operation greatly and further reduce the load on the boilers. In this particular field the water is very hard and contains a large amount of solids, so reducing the amount of water necessary to evaporate offers a particular advantage.

Insulation of steam lines on drilling rigs presents many difficulties. While it is true that savings can be made which will justify its installation, it is always a problem to maintain insulation when frequent set-ups are made in new locations. So in the final analysis the saving is hard to prove and justify. For this reason it would appear that high degree superheat becomes a more practical substitute for insulation. The cost of an integral superheater for 200° to 250° is very little more than one for 100° of superheat. Very little additional heat is required for the higher superheat and the fuel necessary to secure it has no valve. Line losses with superheated steam are much smaller than with saturated steam so that in a large percentage of the locations all the line losses

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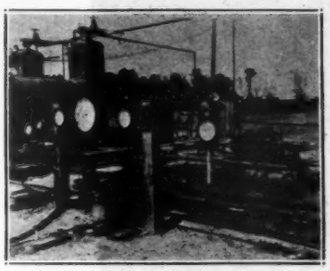
can be absorbed by the superheat and still provide sufficient superheat at the rig to give it the full benefit of superheated steam. This system does not throw any additional load on the boilers for no condensation takes place.

Some thought should be given to the type of superheater best adapted to oil country practice. Up until the present time the locomotive firebox type of boiler has proven the most practical for oil country drilling operations. In this type of a boiler it is possible to install economically a superheater for high degree superheat which will outlast the life of an oil country boiler. This superheater is automatic in its operation without any attention necessary other than to



Instruments at boiler manifold, for recording steam pressure, temperature and flow, and gas consumption.

provide a flow of steam to it during the firing-up period. Being located in the flues of the boiler it is always protected by the water surrounding the flues for all variations in load. Its weight is very small and it can be moved with the boiler without being disturbed so that its first cost is practically its last cost.

Separately fired superheaters for high degrees of superheat for the quantity of steam used on drilling operations cannot be built in a portable type unless a large portion of the heat is adsorbed by radiation. In Figure 5 the variation in steam flow over a day's operation is shown. Experience in other industries has demonstrated that it is difficult to protect a superheater of this type with large variations of steam flow. Automatic firing equipment assists greatly in this protection but failure for a short time is usually fatal.

When separately fired superheaters are built in a permanent brick setting it is possible to afford some more protection to the superheating surface for low degree superheat. The first cost of this type is possibly lower than any other type and where boilers are used in one location for a long period of time they are probably economical. However, when the additional cost of piping, valves, fittings, automatic control and the small salvage value of the heating surface and setting are considered it is probable that when the battery of boilers has to be moved frequently the low first cost is soon dissipated.

NEW LOCATIONS

(Continued from Page 119)

of the north 132.5 acres of Section 1,916, T.E.&L. Watson & Webb's No. 1 F. & N. Heard, 450 feet north and 600 feet east of the SW cor. of Section 701, T.E.&L. Wooten & Reed's No. 1 A. C. Casey-B, 750 feet north and 150 feet east of the SW cor. of the south 46 acres of the E half of Section 1,906, T.E.&L. J. F. Hart's No. 1 V. A. Watson, 2,350 feet south and 150 feet west of the most easterly NE cor. of the I.&G.N. Survey A-1,462. Smith & Shamblin's No. 1 Belknap Townsite, 1,150 feet south and 1,900 feet west of the NE cor. of the A. White Survey A-1,270, being 330 feet south and 150 feet east of the NW cor. of the town of Belknap.

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Detailed Operations in All Fields for November, 1930

SUMMARY OF ALL FIELDS
WELLS COMPLETED

	Comp.	Prod.	Dry	Gas
Eastern	230	889	47	64
Central Ohio	88	760	35	31
Lima	20	177	3	11
Indiana	18	146	6	5
Michigan	32	1,347	18	4
Kentucky	91	5,948	19	15
Illinois	12	61	5	0
Kansas	53	16,939	20	12
Oklahoma	205	388,053	70	33
North Cent. Texas	147	4,729	96	8
East Cent. Texas	36	74,302	18	0
East Texas	3	.....	1	2
West Texas	38	12,569	12	0
Texas Panhandle	33	5,920	4	3
Gulf Coast	94	30,600	43	3
Southwest Texas	73	11,593	40	7
North Louisiana	53	2,861	25	19
Arkansas	8	115	4	2
Mississippi	10	.....	4	6
Montana	11	75	3	3
Wyoming	10	2,129	2	2
Colorado	4	.....	4	0
New Mexico	24	223,550	0	1
Utah	2	.....	2	0
Total November	1,295	782,783	481	231
Total October	1,596	900,570	530	282
Difference	301	117,787	49	51

RIGS AND WELLS DRILLING

	Rigs	Drlg.	Total
Eastern	56	210	266
Central Ohio	36	148	184
Lima	6	25	31
Indiana	2	51	53
Michigan	62	104	167
Kentucky	16	151	167
Missouri	0	4	4
Tennessee	0	17	17
Illinois	2	23	25
Kansas	37	172	209
Oklahoma	84	541	625
North Central Texas	48	282	330
East Central Texas	6	32	38
East Texas	6	19	25
West Texas	34	162	196
Panhandle Texas	41	91	132
Gulf Coast	21	150	171
Southwest Texas	79	196	275
North Louisiana	38	86	124
Arkansas	5	51	56
Mississippi	11	27	38
Alabama	2	3	5
Montana	18	77	95
Wyoming	22	109	131
Colorado	14	78	92
New Mexico	14	76	90
Utah	1	24	25
Total November	662	2,909	3,571
Total October	744	3,054	3,798
Difference	82	145	227

Note—In the following report the Section, Township and Range are given first; then the farm, the owner, the serial number of the well and the initial production of the well. In lines where the Section, Township and Range are missing the wells are located in the Sections, Townships and Ranges which appear next above in the report.

OKLAHOMA FIELDS

OKLAHOMA FIELDS
Summary of Wells Completed

County—	Comp.	Prod.	Dry	Gas
Caddo	4	0	3	1
Carter	8	4,807	1	0
Creek	18	905	4	4
Hughes	6	0	3	3
Muskogee	19	35	14	4
Okmulgee	9	49	2	3
Oklahoma	39	334,110	3	1
Osage	7	295	2	2
Pawnee	6	12	4	0
Pontotoc	5	116	2	0
Pottawatomie	13	14,713	1	0
Seminole	20	32,708	3	0
Stephens	7	234	3	0
Tulsa	7	29	4	1
Wagoner	11	40	5	4
Miscellaneous	26	0	16	10
Total November	205	388,053	70	33
Total October	295	408,412	83	45
Difference	90	20,359	13	12

Summary of Rigs and Wells Drilling

County—	Rigs	Drlg.	Ttl.
Alfalfa	0	2	2
Atoka	0	1	1
Beckham	0	7	7
Blaine	0	1	1
Bryan	0	4	4
Caddo	0	7	7
Canadian	0	1	1
Cherokee	0	1	1
Coal	0	4	4
Carter	6	13	19
Cleveland	1	4	5
Comanche	0	3	3
Cotton	0	5	5
Creek	8	47	55
Garfield	1	5	6
Grady	1	2	3
Greer	0	2	2
Grant	0	4	4
Harper	0	1	1
Harmon	0	1	1
Hughes	0	6	6
Haskell	0	4	4
Kay	1	6	7
Kiowa	0	2	2
Kingfisher	0	2	2
Le Flore	0	1	1
Lincoln	0	5	5
Latimer	1	3	4
Logan	0	5	5
Love	0	1	1
McClain	0	1	1
McIntosh	0	3	3
Marshall	0	5	5
Muskogee	8	25	33
Noble	0	7	7
Okfuskee	2	15	17
Oklahoma	22	175	197
Okmulgee	4	19	23
Osage	6	18	24
Pawnee	2	14	16
Payne	1	7	8
Pittsburg	3	6	9
Pontotoc	0	4	4
Pottawatomie	3	10	13
Roger Mills	0	2	2
Seminole	6	33	39
Stephens	2	17	19
Tulsa	3	14	17
Washita	1	1	2
Wagoner	2	13	15
Woods	0	1	1
Woodward	0	1	1
Total November	84	541	625
Total October	104	558	662
Difference	20	17	37

CADDO COUNTY

31- 6-9w McKenna, Clyde Kahl 1 ..... dry
Abernathy, English Drlg. Co. 7 ..... dry
25- 4-8w Miller, Badgett & Cooper 1 .. gas
24- 6-11w Cogza, Simms Pet. Co. 1 ..... dry

Wells completed 4
Dry 3
Gas 1
Gas production 4,000,000

CARTER COUNTY

13-1s-3w Brady, Magnolia Pet. Co. 2.. 130
24-1s-3w Dickerson, Magnolia Pet. Co. 1 dry
Mitchell, Wirt Franklin Pet. Corp. 4 503
19-1s-2w Meeks, J. H. Hudson et al 1. 15
30-1s-2w Mitchell, George L. Pace et al 1 60
24-1s-3w Mitchell, M.G.R. Oil Co. 2 ... 817
13-1s-3w Hooker, Magnolia Pet. Co. 1. 614
24-1s-3w M. Deckerson, Magnolia Pet. Co. 2 2468

Wells completed 8
Production 4807
Dry 1

CREEK COUNTY

10-17-9 Bruce, Dixie Drlg. Co. et al 1 dry
31-15-8 Jim, Tidal Oil Co. 2 400
18-14-9 Carter, C. G. Tibbens O. & G. Co. 3 40
Sneed, C. G. Tibbens O. & G. Co. 3 30
11-19-9 Henneha, Johnson O. & R. Co. 2 ..... dry
14-19-9 Jackson, Jackson & Wise 1 . dry
20-18-9 Sneed, H. & Bartlett 1-A .... gas
21-16-11 Gooch, William Sherry et al 1-A ..... gas
15-14-10 Kimble-Reading, Campbell & Cothren and Deep Rock Oil Corp. 1 50
10-15-8 Lewis, Deep Rock Oil Corp. and Turman Oil 3 90
15-15-8 Warnarkee, Deep Rock Oil Corp. et al 4 115
13-14-9 Sneed, Tibbens O. & G. Co. 4. 35
36-19-7 Pigeon, Tidal Oil Co. 2 100
31-19-8 Bruner, Gled Oil Co. 2 ..... dry
12-17-8 Self, Tim Cushing et al 1 5
19-17-11 Cartright, J. H. Wright estate 1-A ..... gas
32-17-12 Stewart, F. B. Murta et al 2. 40
9-16-12 Barnett, Turner Bros. & Savoy Oil Co. 1-A ..... gas

Wells completed 18
Production 905
Dry 4
Gas 4
Gas production 9,250,000

HUGHES COUNTY

17- 7-8 Brown, Holm & Jarvis 1 .... gas
28- 9-12 Kanard, Canady et al 1 .... dry
16- 7-8 Street, Mid-Kansas O. & G. Co. 1 ..... dry
17- 7-8 Jackson, Magnolia Pet. Co. 2 gas
12-19-10 Piller, McGee et al 2 ..... gas
6- 9-11 Eason, Mid-Kansas O. & G. Co. 1 ..... dry

Wells completed 6
Dry 3
Gas 3
Gas production 77,000,000

MUSKOGEE COUNTY

27-16-15 Rowe, Mack Drlg. Co. 1 ..... dry
34-16-15 Richards, B. H. Young et al 1-A ..... dry
17-15-15 Thompson, Taylor & Geiger 1-A ..... gas
5-15-18 Murrell, C. F. Finefield et al 1 35
15-15-18 Rentie, J. R. Parks 2 ..... dry
20-15-18 Canard, R. F. Ray et al 1 .. gas
14-13-18 Jordan, Wilson & Johnson 2. dry
23-13-18 Griffin, Bower et al 1 ..... dry
21-12-19 Wilson, I. T. I. Oil Co. 1 .... gas
5-13-16 Fowler, Bement Oil Co. 4 ... dry
27-16-15 Lee, John Aggas 1 ..... dry
12-15-17 E. Sango, C. D. Bradley - ... dry
3-15-18 McIntosh, Cooper & Beam 1 . dry
7-15-18 Caesar, E. Mills et al 1 ..... dry
8-15-18 Bemo, E. B. Grubbs et al 1.. dry
9-15-18 Ingram, Western D. & E. Co. 1 dry
20-15-18 McIntosh, E. Mills et al 1 ... gas
4-14-17 Stidham, O. A. Sewell et al 1. dry
31-12-19 Hood, Moore & Crow 1 ..... dry

Wells completed 19
Production 35
Dry 14
Gas 4
Gas production 6,250,000

OKMULGEE COUNTY

14-16-13 Fox, Bassinger et al 4 ..... dry
9-15-13 Brown, Kirkland & Son 4 ... 12
9-15-14 Tucker, Independent O. & G. Co. 1 ..... dry
13-14-14 Rentie, Elm Oil Co. 24 ..... dry
9-15-13 Brown, Kirkland & Son 5 ... 12
15-14-14 Colbert, F. D. Misener 5 10
29-15-12 Simmons, Speary Bros. 1 .... gas
19-15-14 Harrison, A. W. Cline 2-A ... gas
1-14-14 Harris, Whitcomb et al 2 .... gas

Wells completed 9
Production 49
Dry 2
Gas 3
Gas production 5,000,000

OKLAHOMA COUNTY

35-12-3w Page-Tucker, Wirt Franklin Pet. Corp. 1 1792
2-11-3w Gibbons, Anderson & Pritchard 3 3414
Graham, Anderson & Pritchard 1 3807
Vinita Park, J. C. Shaffer 2.. 885
10-11-3w Holmes, Hall & Briscoe 2 ...19,011
10-11-3w E. Precure, I. T. I. Oil Co. et al 2 7941
12-11-3w Trosper Park, Cromwell-Franklin Oil Co. 34 1561
14-11-3w Habegger, Anderson & Pritchard 1 4974
Government, Government Pet. Co. 1 440
Huffman, I. T. I. Oil Co. et al 2 1319
Spillman, I. T. I. Oil Co. et al 2 2448
15-11-3w Phelan Heights, I. T. I. Oil Co. 2 523
17-13-3w Dills, The Prairie O. & G. Co. and T. B. Slick 1 ..... dry
2-11-3w Mueller, Hall & Briscoe 1 ..15,352
2-11-3w Pugh, Minnehoma Oil Co. 1.40,344
Shana, Wirt Franklin Pet. Corp. 1 1289
11-11-3w Ferndale Community, I. T. I. Oil Co. et al 3 3120
24-11-3w Olds, Coline Oil Co. 4 ..... gas
36-11-3w School Land No. 69, Sinclair O. & G. Co. and Independent 2 4688
School Land No. 69, Sinclair O. & G. Co. and Independent 3 5607
1-11-3w Pesthouse, Anderson & Pritchard 2 7119
Theimer, I. T. I. Oil Co. et al 8 169
2-11-3w Keys, Anderson & Pritchard 1 7400
McKeehen, McMahon et al 1. dry
10-11-3w View Point, I. T. I. Oil Co. et al 1 27,991
12-11-3w Trosper Park, Cromwell-Franklin Oil Co. 33 3046
14-11-3w Hugh Trosper, I. T. I. Oil Co. et al 4 6296
May Knox, I. T. I. Oil Co. et al 4 6888
19-11-2w Hiddleston, The Prairie O. & G. Co. and T. B. Slick 2 ... dry
35-12-3w Page, Wirt Franklin Pet. Corp. 3 2347
2-11-3w Moreland, Oils Inc. 1 9633
Ross, Oils Inc. 1 51,944
10-11-3w Holmes, Hall & Briscoe 5 ..54,156
Schilling, J. E. Mabee et al 1 13,120
Tanner, Skelly Oil Co. and Heenan & Coe 2 27,662
14-11-3w C. Trosper, I. T. I. Oil Co. et al 2 3666
15-11-3w Lawrence Place, I. T. I. Oil Co. et al 3 5877
25-11-3w Clauer, Coline Oil Co. 14 427
36-11-3w Oklahoma State, I. T. I. Oil Co. 6 1027

Wells completed 39
Production 324,110
Dry 3
Gas 1
Gas production 18,000,000

OSAGE COUNTY

19-25-8 Atlantic O. P. Co. 8 45
4-24-10 Western American Oil Co. 16. dry
5-26-12 I. T. I. Oil Co. 440 ..... gas
20-21-11 Oklahoma Natural Gas Corp. 1,813 ..... gas
5-23-9 Continental Ref. & The Prairie O. & G. Co. 6 75
33-22-11 Devonian Oil Co. 1 ..... dry
11-21-8 Turman Oil Co. 4 175

Wells completed 7
Production 295
Dry 2
Gas 2
Gas production 9,250,000

PAWNEE COUNTY

31-21-9 Gibbons, Jacob Fell 1 5
36-20-5 School, Mid-Continent Pet. Corp. 36 ..... dry
25-20-9 Townsite, Dr. Harrington et al 1-A ..... dry
35-20-9 Mills, Johnson O. & R. Co. et al 1 ..... dry
27-20-9 Johnson, Bryan Pet. Co. 2 .. 7
1-20-5 Freeman, Flynn & Morgan 1.. dry

Wells completed 6
Production 12
Dry 4

PONTOTOC COUNTY

35- 5-6 Martin, Universal Oil Co. 1 .. dry
31- 5-7 Slates, Universal Oil Co. 1 .. dry
28- 5-5 Wallen, Benedum-Trees Oil Co. 1 8
32- 5-5 Haynes, Dixie Oil Co. 1-B .. 58
Mauldin, Superior Oil Corp. 8 50

Wells completed 5
Production 116
Dry 2

POTTAWATOMIE COUNTY

23- 6-3 Horn, Gypsy Oil Co. 2 4525
Davidson, I. T. I. Oil Co. 6 ... 770
11- 8-4 Helmerich, Lipps et al 1 ... dry
9- 7-4 Thomas, Atlantic O. P. Co. 1.. 256
23- 6-3 Gibson, Deep Rock Oil Corp. 3 3035
Warren, Wilcox O. & G. Co. 7.1490
20- 9-5 Roush, Lippa Drlg. Co. 1 50
14- 5-3 Cass, Pure Oil Co. 2 1871
22- 6-3 Bullock, Payne et al 1-A ...1920
23- 6-3 Alexander, Empire O. & R. Co. 2 123
Davidson, I. T. I. Oil Co. 7 .. 458
Sowers, Twin State Oil Co. 1. 160
Sowers, Twin State Oil Co. 2. 55

Wells completed 13
Production 14,713
Dry 1

SEMINOLE COUNTY

2- 8-5 Coker, Carter Oil Co. 7 886
11- 7-6 Bruner, Mid-Continent Pet. Corp. 5 2125
29- 9-6 Morris, Amerada Pet. Corp. and Dixie Oil 1 2115
3- 8-5 Tiger, Amerada Corp. 1 2710
30- 8-8 Whitworth, Deep Rock Oil Corp. 1 2537
29- 6-6 M. Caesar, Sinclair O. & G. Co. 1 735
9- 6-7 Thomas, Neal & Milton 1 .. dry
22- 9-6 Pompey, Gypsy Oil Co. 1 4012
Sandlin, The Texas Company 1 2805
2- 8-5 Coker, Gypsy Oil Co. 5 1498
3- 8-5 L. Tiger, Gypsy Oil Co. 1 ...3412
19- 7-8 Fish "B," Empire O. & R. Co. 2 526
12- 7-6 H. Wilson, Carter Oil Co. 3 ..1704
29- 6-6 Fleet, Harris et al 2 605
10- 9-8 Abel, The Prairie O. & G. Co. 1 ..... dry
3- 8-5 Brown, Empire O. & R. Co. 2.2444
Tiger, Amerada Pet. Corp. 2..2995
30- 8-8 Douglas 60 acres, Deep Rock Oil Corp. 1 ..... dry
19- 7-8 Chilly Fish "A," Empire O. & R. Co. 2 889
29- 6-6 M. Caesar, Sinclair O. & G. Co. 2 710

Wells completed 20
Production 32,708
Dry 3

STEPHENS COUNTY

19- 1-8w Funk, Barney Cockburn 2 .. 15
20- 1-8w Ing, George Pace et al 1 ... dry
16-1s-8w Blake, Sykes et al 2 19
11-2s-8w Parker, Harris & McNeil 1 ... 100
27-2s-7w Dilley, Pace et al 3 100
21-1s-8w Palmer, Harry Hanbury 1 ... dry
2-2s-8w Green, Pace et al 1-B ..... dry

Wells completed 7
Production 234
Dry 3

TULSA COUNTY

7-19-14 Cowans, O. H. Parkening et al 1 4
20-19-14 McIntosh, Murray et al 1 .... gas
17-19-14 McIntosh, Murray et al 1 .... dry
4-17-14 Perryman, Preston et al 1 ... 25
15-19-14 Primus, Mays Drlg. Co. 1 .... dry
1-19-14 McIntosh, Gallo Bros. 1 ..... dry
28-18-14 Boulton, Byrne & Green 2 ... dry

Wells completed 7
Production 29
Dry 4
Gas 1
Gas production 1,000,000

WAGONER COUNTY

10-17-16 Cruel, Coffey et al 1 ..... dry
21-17-16 Chockley, J. W. Edwards 2.. 25
4-16-16 Jackson, J. W. Edwards 1 ... dry
36-16-17 Brown, Duke et al 1 ..... dry
9-19-16 M. Roberts, J. McCutcheon et al 1 ..... dry
34-18-17 Barnett, Western D. & E. Co. 6 ..... gas
34-17-16 Barnett, A. H. Secrist 2 ..... gas
6-17-17 Kennard, Brasheers et al 1 .. gas
36-16-17 Brown, J. McCutcheon et al 3 15
10-18-16 Kelly, May Drlg. Co. 1 ..... dry
31-18-17 Austin, R. L. North 1 ..... gas

Wells completed 11
Production 40
Dry 5
Gas 4
Gas production 9,178,800

MISCELLANEOUS COUNTIES

Comanche County—
23- 2-10w Corry, K-D Drilling Co. 1 ... dry
24- 2-10w Cox, K-D Drilling Co. 1 .... dry

Cleveland County—
6-10-2w Reynolds, I. T. I. Oil Co. et al 2 ..... dry

Coal County—
11- 1-8 King, W. E. McCraw 1 ..... dry

Grady County—
36- 4-8w Kinnard, Meridian Gas Co. 3. gas
25- 4-8w Ridley, Natural Gas Producing Corp. 2 ..... gas

Kiowa County—
6- 7-16w Grebb, O. B. Riley 1 ..... dry

Logan County—
33-16-1w Morgan, The Prairie O. & G. Co. and T. B. Slick 1 ..... dry

32-17-1 Simms, The Prairie O. & G. Co. and T. B. Slick 1 ..... dry

Le Flore County—

23- 9-24 Fee, Red Bank Oil Co. 1 .... gas

Marshall County—

14-5s-5 Taliaferro, Bilbo Oil Corp. 16. dry
28-5s-6 Barnard, R. L. Keener 1 ..... dry

McIntosh County—

34-12-14 M. Williams, Deep Fork Oil Co. 2 ..... gas
29-12-15 Taylor, A. Moffitt 1 ..... dry

Payne County—

14-19-5 Crow, Carter Oil Co. 6 ..... dry
9-18-5 Kennedy, Pure Oil Co. 2 .... gas

Pittsburg County—

18- 7-13 Walker, Apex Oil Co. 1 ..... dry
9- 7-18 Curry, Central States Power & Light Co. 2 ..... gas
11- 7-8 Koehler, Central States Power & Light Co. 2 ..... gas
15- 7-18 Koehler, Nolan & Nolan 1 ... gas
9- 6-17 Featherstone, Cities Service Co. 1 ..... dry
16- 7-18 Carney, Public Service Co. of Oklahoma 1 ..... gas
9- 7-18 Carney, Central States Light & Power Co. 2 ..... gas

Woods County—

10-25-15w Fee, Bu Vi Bar Pet. Co. et al 1 ..... dry

Okfuskee County—

11-11-11 Smith, F. Cussack et al 15 ... dry
23-10-11 Bell, Champlin O. & R. Co. 1 dry

Wells completed 26
Dry 16
Gas 10
Gas production 94,000,000

KANSAS FIELDS

Summary of Wells Completed

County—	Comp.	Prod.	Dry	Gas
Butler	3	0	3	0
Cowley	5	0	0	5
Greenwood	3	275	0	0
McPherson	5	4,545	2	0
Sedgwick	13	9,904	4	0
Stevens	7	0	0	7
Miscellaneous	17	2,215	11	0
Total November	53	16,939	20	12
Total October	111	17,150	45	29
Difference	58	211	25	17

Summary of Rigs and Wells Drilling

County—	Rigs	Drlg.	Ttl.
Barber	0	2	2
Barton	0	3	3
Bourbon	1	0	1
Butler	0	10	10
Clark	0	1	1
Clay	0	1	1
Coffey	0	4	4
Cowley	1	12	13
Dickinson	0	1	1
Douglas	0	1	1
Edwards	0	1	1
Elk	0	3	3
Ellis	0	6	6
Ellsworth	1	2	3
Ford	0	2	2
Geary	0	1	1
Greenwood	4	12	16
Gove	0	2	2
Graham	0	1	1
Grant	0	1	1
Harper	0	2	2
Harvey	0	5	5
Kingman	0	2	2
Kiowa	0	2	2
Lyons	1	1	2
McPherson	13	19	32
Marion	3	2	5
Morris	4	0	4
Morton	1	1	2
Ness	1	0	1
Norton	1	0	1
Osage	0	1	1
Pawnee	0	1	1
Pratt	0	1	1
Rawlins	0	1	1
Reno	0	4	4
Rice	3	10	13
Rooks	0	2	2
Rush	1	2	3
Russell	2	6	8
Saline	1	1	2
Sedgwick	5	22	27
Seward	0	1	1
Sheridan	0	1	1
Stevens	2	10	12
Sumner	1	6	7
Trego	0	1	1
Washington	0	1	1
Woodson	1	1	2
Total November	37	172	209
Total October	40	176	216
Difference	3	4	7

WELLS COMPLETED

BUTLER COUNTY

2-26-4 Settergren, National Ref. Co. 1 dry
24-28-5 Hedderman, National Ref. Co. 1 dry
19-27-6 Marshall, Hammer & McLean 1 dry

Wells completed 3
Dry 3

COWLEY COUNTY

12-32-4 Brant "A," Roth & Faurot 2.. gas
24-33-5 Stevens, Gralap et al 1..... gas
19-32-6 Jarvis, Gralap et al 2..... gas
12-32-4 Roberts, Lewis Prod. Co. 1 "A" gas
12-32-4 Brandt, Roth & Faurot 2 "A". gas

Wells completed 5
Gas 5
Gas production 4,730,000

GREENWOOD COUNTY

19-22-11 Harris, Simmons et al 5 75
16-24-12 Johnson, Shull Drlg. Co. 1.... 100
33-22-11 Westcott, York State Oil Co. 11 100

Wells completed 3
Production 275

McPHERSON COUNTY

30-18-2w Rolander, Graham Bros. 1-A. 25
11-19-2w Fleming, McPherson O. & G. Dev. Co. et al 1..... gas
11-20-5w Kuns, W. E. McPherson et al gas
30-19-1w Garrett, Mid-Kansas O. & G. Co. 1 3327
1-20-2w Miller, Lario Oil Co. and Shell Pet. 1 1193

Wells completed 5
Production 4545
Gas 2
Gas production 14,020,000

SEDGWICK COUNTY

25-27-1 Dennison, Graham Bros. et al 1 25
19-27-2 Eastborough, Derby Oil Co. 3..1350
30-27-2 Keya, Vickers & Hinkle 4.....1800
18-27-2 Murdock, Natl. Ref. Co. et al 2.1622
Fee, E. B. Shawver 1..... 500
19-27-2 Trustee, Fisher & Lauck 7..... dry
Trustee, Fisher & Lauck 8..... 732
Eastborough, Derby Oil Co. 4..2355
Wheeler, Magnolia Pet. Co. 2... 720
30-27-2 Rimel, Derby Oil Co. 2..... dry
19-27-2 Montgomery, Eisenhour et al 1 dry
Soukup, Seigel Bros. 1..... 800
29-27-2 Brady, Magnolia Pet. Co. 1.... dry

Wells completed 13
Production 9904
Dry 4

STEVENS COUNTY

24-32-39w Youngren, Mo. Kans. P. L. Co. et al 1..... gas
21-32-38w Fee, Western Prod. Co. 1.... gas
Fee, Western Prod. Co. 3.. gas
26-32-38w Ratcliff, Argus Prod. Co. 4.. gas
8-33-37w Ratcliff, Argus Prod. Co. 3 . gas
31-34-37w Burrows, Western Prod. Co. 1 gas
10-32-38w Ponder Western Prod. Co. 1. gas

Wells completed 7
Gas 7
Gas production 43,467,000

MISCELLANEOUS COUNTIES

Barber County—

10-33-13w Rule, McPherson O. & G. Dev. Co. 1 ..... dry
24-33-13w Root, Barbara Oil Co. 1.... dry

Marion County—

18-21-2 Lehrman, Magnolia Pet. Co. 1 dry

Ellsworth County—

25-17-10w Helken, Slick, Pryor & Lockhart et al 1 359

Harvey County—

11-23-2w Houry "B," Shell Pet. and McPherson O. & G. Dev. Co. 1 ..... dry

Lyon County—

29-20-10 Barr, Phillips Pet. Co. et al 1 dry

Reno County—

16-22-7w Kinney, Alco Royalty Co. et al 1 ..... dry

Rush County—

5-16-18w Leiker, Prairie O. & G. Co. et al 1 ..... dry

Rice County—

34-19-9w Mowery, E. H. Langston et al 1 ..... dry
21-20-10w Schurr, Slick, Pryor & Lockhart 2 477
21-20-10w Thompson, Prod. & Ref. 2... 960

Stafford County—

36-22-12w Richardson, Midwest Explin. Co. 36 346
9-22-11w Sinclair, Boucher et al 1.... dry

Sumner County—

11-31-2 Stout, Washoma Pet. Co. 1.... dry
25-31-2 Churchill, Shell Pet. Corp. 11 . 25
9-33-2 Shriner, Magnolia Pet. Co. 1... dry
16-35-2 Mynes, Fred Morgan et al 1.... 48

Wells completed 17
Production 2215
Dry 11

NORTH CENTRAL TEXAS

Summary of Wells Completed

County—	Comp.	Prod.	Dry	Gas
Archer	16	59	13	0
Baylor	2	0	2	0
Brown	4	0	3	1
Callahan	2	0	1	1
Clay	1	0	1	0
Coleman	12	971	6	2
Cooke	3	20	2	0
Denton	3	0	3	0
Eastland	5	18	3	1
Erath	2	0	1	1
Grayson	4	60	2	0
Montague	2	45	1	0
Shackelford	6	50	4	0
Stephens	5	35	2	0
Throckmorton	6	18	4	0
Wichita	4	75	2	0
Wilbarger	2	51	0	0
Young	68	3,327	46	2
Total November	147	4,729	96	8
Total October	155	2,473	100	13
Difference	8	2,256	4	5

Summary of Rigs and Wells Drilling

County—	Rigs	S.D.	Drlg.	Ttl.
Archer	9	20	7	36
Brown	2	3	8	13
Callahan	0	4	2	6
Coleman	1	9	15	25
Cooke	3	8	5	16
Clay	0	2	1	3
Eastland	1	6	10	17
Erath	0	4	0	4
Jack	1	4	1	6
Montague	0	1	3	4
Palo Pinto	5	11	6	22
Shackelford	2	4	2	8
Stephens	0	3	5	8
Throckmorton	1	3	4	8
Wichita	3	9	9	21
Wilbarger	2	12	1	15
Young	15	25	37	77
Miscellaneous	3	27	6	36
Total November	48	160	122	330
Total October	62	164	124	350
Difference	14	4	2	20

WELLS COMPLETED

ARCHER COUNTY

Hamilton, W. R. Cooper 1 ..... dry
Lauster-B, Kisk Oil Co. 1 10
Herron, C. C. Williams 1 ..... dry
Hamilton, C. B. Christie 1 ..... dry
Arnold, Dean & Alexander 1 14
Inman, Hedrick-Camp. Drlg. Co. 1 .... dry
Hudson, Humble O. & R. Co. 2 ..... dry
Falls County School Land (Humble), Perkins & Cullum 2 ..... dry
Wells, Geo. Abercrombie 1 ..... dry
Falls County School Land, Bridwell Oil Co. 1 ..... dry
Fish, H. P. Key et al 1 ..... dry
Snider, Panhandle Ref. Co. 2 ..... dry
West, Fain-McGaha Oil Corp. 1 ..... dry
Green-B, W. E. Maxson, Jr., 9 35
Justice-D, McLaughlin Bros. 1 ..... dry
Terrell, Panhandle Ref. Co. et al 1 .... dry

Completions 16
Production 59
Dry holes 13

BAYLOR COUNTY

Holman, The Texas Company 1 ..... dry
Mills, Burns and The Texas Co. 1 .... dry

BROWN COUNTY

Trueheart, Cox et al 1 ..... dry
Haselwood, McCarter et al 1 ..... dry
Turner, Prairie Oil & Gas Co .2 ..... dry
Leach, Hynes & Engle 1 ..... gas

Completions 4
Dry holes 3
Gas wells 1

CALLAHAN COUNTY

West, Glengary Oil Co. 1 ..... dry
Berry, Meredith & Benton 2 ..... gas

Completions 2
Dry holes 1
Gas wells 1

CLAY COUNTY

Martin et al, Phillips Pet. Co. et al 1 .. dry

COLEMAN COUNTY

Audas, Lamb, Gant et al 1 ..... dry
Golson, Barnsdall Oil Co. 1 300
Golson, Prairie Oil & Gas Co. 1 304
Taylor, Atlantic O. P. Co. et al 2 ..... gas
Coursey, Kirk et al 1 ..... dry
Burns, Prairie Oil & Gas Co. 1 ..... dry
Fiveash, Baker Bros. 1 ..... dry
McCulloch, Sterling Oil & Gas Co. et al 1 17
Newton, Texas American Synd. 3 350
Peggis Bros., Guffey Bros. et al 1 .... dry
Baker, Mace et al 1 ..... dry
Harris, Jake L. Hamon ..... gas

Completions 12
Production 971
Dry holes 6
Gas wells 2

COOKE COUNTY

Sitzes, Ray Bourland et al 1 ..... dry
Dougherty, D. Atkins et al 1 ..... dry
Lawson, Deep Rock & Faith Oil Corp. 2 20

Completions 3
Production 20
Dry holes 2

DENTON COUNTY

Yeatts, The Texas Co. and Benson Bros. 1 ..... dry
Jacobs, Lloyd Oil Corp. 1 ..... dry
Wilkerson, Hart Bros. 1 ..... dry

EASTLAND COUNTY

J. V. Parker, Cranfill & Reynolds 1 .. gas
Turner-A, Barkley & Crotty 4 ..... dry
Sibley, Mook-Texas Oil Co. 11 ..... dry
J. R. Higgins, Nunn et al 1 ..... dry
Hunt, Fifty-Six Pet. Corp. 1 18

Completions 5
Production 18
Dry holes 3
Gas wells 1

ERATH COUNTY

R. L. Pair, McCamey et al 1 ..... dry
Diaz Fee, T. P. Coal & Oil Co. 2 ..... gas

GRAYSON COUNTY

Mauldin, C. E. Marshall 1 ..... dry
Jewell, E. Price et al 1 ..... dry
Dalton, Sherman Oil Co. 2 33
Dalton Oil Co. 1 27

Completions 4
Production 60
Dry holes 2

MONTAGUE COUNTY

Cunningham-C, Continental and Bridwell Oil Co. 5 45
Maddox, Fleming & Kimball 1 ..... dry

SHACKLEFORD COUNTY

H. Herron, Gilman & McMurray 3 25
Elliott, Graham & Hunter 1 ..... dry
Mathews, Hicks & Hubbard 1 25
Nail, G. F. Mitchem 3 ..... dry
Simpson, H. & H. Drlg. Co. 1 ..... dry
Griffith, S. A. Thompson 1 ..... dry

Completions 6
Production 50
Dry holes 4

STEPHENS COUNTY

Drummond, Southern Pet. Expl. Co. 1.. dry
Swenson, Grantor Oil Co. 38 10
Swenson, Grantor Oil Co. 39 5
Swenson, Grantor Oil Co. 40 20
W. A. Corbett, Universal Oil Co. 1 .... dry

Completions 5
Production 35
Dry holes 2

THROCKMORTON COUNTY

Reynolds Land & Cattle, Co., Knox et al 1 10
Reynolds Land & Cattle, Co., Knox et al 2 8
Mrs. R. L. Parrott, Moore & Edwards 1 dry
J. A. Matthews, Gulf Prod. Co. 3 ..... dry
Howsley, L. B. Tannehill 1 (location temporarily abandoned) ..... dry
Shaw, Woodley Pet. Co. 1 ..... dry

Completions 6
Production 18
Dry holes 4

WICHITA COUNTY

Volkart, C. Everts et al 1 ..... dry
Overby, Lambert & Trout 10 42
Boyd, Comac Drlg. Co. et al 1 ..... dry
Honaker, Walton & Blair 4 33

Completions 4
Production 75
Dry holes 2

WILBARGER COUNTY

Waggoner-C, Lido Oil Co. 7 5
Waggoner-F, Southwestern Roy. Co. 3 .. 46

Completions 2
Production 51

YOUNG COUNTY

Belknap Coal Co., C. E. Beavers 1 105
S. F. Davis hrs., F. H. E. Oil Co. et al 1 dry
V. W. Kunkel, A. Goldsmith 1 ..... dry
S. R. Jeffery, Martin & Maer 1 ..... dry
Belknap Coal Co., Sheldon & Shaw 1 .. 365
Mrs. W. E. White, Stafford & Williams 1 dry
S. R. Jeffery-B, The Texas Company and McKenna 1 55
S. R. Jeffery-B, The Texas Company and McKenna 2 210
B.F. Smith, T. G. Williams 1 ..... dry
Bryan et al, Wootten & Reed 2 ..... dry
J. J. Williams, F. M. Yell & Son 1 ..... dry
Weaver, Grubbs et al 1 ..... dry
Mills estate, Hamilton et al 1 ..... dry
Epstein, Hynds & Parker 1 ..... dry
Crow, Long et al 1 ..... dry
Johnson, McDonald & Webb 1 ..... dry
Daws, Thompson et al 2 ..... dry
Finch hrs., Banner 1 162
Baldwin-B, J. A. Bearman et al 1 ..... dry
Bailey, Consolidated Oil Co. of Texas 1.. dry
Bullock-B, W. H. Hammon 1 ..... dry
Clifton, R. L. Hayes 1 ..... dry
Routon, Mason & Fitzgerald 1 ..... dry
Larimore et al, E. R. Riggs 1-A 110
Jeffery, E. J. Stump 1 ..... dry
Watson, R. J. Watson et al 1 ..... dry
Jarnigan, Atlantic O. & R. Co. et al 1 .. dry
McComas, W. F. Brazelton et al 1 .... dry
Bloodworth, Bridwell Oil Co. 1 ..... dry
Coleman, W. L. Deininger 1 ..... dry
Jeffery, P. F. Gwynn 2 320
Larimore, Independent O. & G. Co. 17 .. dry
Larimore, Julian Oil Co. and Stripling 11 dry
Kirkwood, King Roy. Co. et al 2 82
Marshall, Lloyd Oil Corp. 1 ..... dry
Jeffery, Maer & Hamilton 2 200
Kirkland, E. R. Riggs 2 205
Larimore et al, E. R. Riggs 16 310
Burris, E. H. Sharp 1 ..... dry
Johnson, J. F. Stover 1 10
Belknap Coal Co., Swink & Smith 1 170
Gathright, Terrell Willis & Fain 1 ..... dry
Finch et al-B, The Texas Company 1 .. 264
McBrayer et al, J. F. West 1 ..... dry
Roach, Whatley & Kinsley 1 ..... dry
Nicholson, Wise & Jackson 1 ..... dry
Donnell, Baker & Pardue 2 ..... gas
Kisinger, Fred Barron 2 ..... gas
State Land, Corzelius et al 1 ..... dry
Jeffery, Roeser, Pendleton & Slick 1 ... dry
Kisinger-C, Shaw Oil Corp. 2 ..... dry
Winkler, Akin & Rayzor 3 32
Jeffery-A, George Alexander et al 2 ... dry
Belknap Coal Co., Belknap Coal Co. 1 .. 140
Johnson, Glover & Wall 6 7
Benson, A. C. Hill et al 1 ..... dry
Graham, King Royalty Co. and Bulington 6 400
Jeffery, McDonald & Campbell 1 ..... dry
Barnhart, Perkins-Cullum & Anderson 1 dry
Finch et al, Roy Seitz 2 90
Lunn, The Texas Company 1 ..... dry
Horton, Wootten & Reed 2 90
McBrayer et al, Wootten & Reed 5 .... dry
Woolfork, A. P. Bisse 1 ..... dry
R. J. Johnson, Marshall, trustee 1 ..... dry
Foster, Martin & Maer 1 ..... dry
Mayes, Panhandle P. & R. Co. 1 ..... dry
Lewis, Taylor et al 1 ..... dry

Completions 68
Production 3327
Dry holes 46
Gas wells 2
Gas production 16,500,000

WEST TEXAS FIELDS

Summary of Wells Completed

County—	Comp.	Prod.	Dry	Gas
Crane	3	2,055	0	0
Ector	7	4,406	0	0
Garza	1	0	1	0
Howard	2	243	0	0
Jones	1	800	0	0
Loving	2	836	0	0
Mitchell	1	0	1	0
Pecos	10	386	4	0
Reagan	1	2,748	0	0
Sutton	1	0	1	0
Taylor	1	0	1	0
Tom Green	1	0	1	0
Upton	4	95	2	0
Ward	2	50	1	0
Winkler	1	950	0	0
Total November	38	12,569	12	0
Total October	45	27,104	15	0
Difference	7	14,535	3	0

Summary of Rigs and Wells Drilling

County—	Rigs	S.D.	Drlg.	Ttl.
Crane	0	1	8	9
Crockett	0	2	1	3
Ector	1	2	2	5
Fisher	0	2	3	5
Glasscock	0	2	1	3
Howard	5	7	5	17
Irion	1	4	3	8
Jones	0	1	2	3
Pecos	7	10	11	28
Reagan	0	0	5	5
Upton	4	0	4	8
Ward	3	3	9	15
Winkler	0	2	2	4
Miscellaneous	13	43	27	83
Total November	34	79	83	196
Total October	33	82	90	205
Difference	1	3	7	9

WELLS COMPLETED
CRANE COUNTY
J. T. McElroy, Gulf Prod. Co. 83 830
J. T. McElroy, Gulf Prod. Co. 84 715
J. T. McElroy, Gulf Prod. Co. 85 510

Completions 3
Production 2055

ECTOR COUNTY
Kloh & Rumsey-D, Humble O. & R. Co. et al 11 1336
University, Simms Pet. Co. et al 4 726
R. L. York, Humble O. & R. Co. et al 11 1000
University-S, Landreth Prod. Corp. 6.. 348
W. E. Connell-B (Tract B), Gulf Prod. Co. 3 137
State, Gulf Prod. Co. 5 545
W. E. Connell, The Texas Company et al 9 314

Completions 7
Production 4406

GARZA COUNTY
K. Stoker, Pandem Oil Corp. 2 ..... dry

HOWARD COUNTY
H. R. Clay, Merrick & Lamb 16 34
Montgomery, Sinclair Oil & Gas Co. 1.. 209

Completions 2
Production 243

JONES COUNTY
W. D. Swann, Pope et al 1 800

LOVING COUNTY
Geo. B. Russell et al, Lee O. White et al 1 500
W. W. Dean, Arkansas Fuel Oil Co. 1.. 336

Completions 2
Production 836

MITCHELL COUNTY
W. T. Scott et al, Gibson & Johnson 3.. dry

PECOS COUNTY
Pecos Valley Oil Co, Curry & Eakin 1 15
University, Lockhart & Co. 1 ..... dry
University, N. E. Tanner et al 1 38
J. H. Tippett, Culberson Bros. 1 155
H. J. Eaton, C. L. Dittman 1 50
J. H. Tippett, Dixie Oil Co. 5 103
J. H. Tippett-A, Southern Crude O. P. Co. 8 ..... dry
J. H. Tippett-A, Southern Crude O. P. Co. 9 ..... dry
J. H. Tippett-A, Southern Crude O. P. Co. 1-L ..... dry
J. H. Tippett (Shell), Cardinal Oil Co. 2-F 25

Completions 10
Production 386
Dry holes 4

REAGAN COUNTY
University, Big Lake Oil Co. 4-6 2748

SUTTON COUNTY
Wilson, Independent O. & G. Co. 1 (location temporarily abandoned) ..... dry

TAYLOR COUNTY
E. D. Bingham, Gibson, Johnson Oil Co. et al 1 ..... dry

TOM GREEN COUNTY
C. W. Lewis, Pratt & Hancock 1 ..... dry

UPTON COUNTY
Cordova Union Land Co., Cordova Union Land Co. 1 ..... dry
T. M. Anderson, Penn Oil Co. and Shell Pet. Corp. 1 ..... dry
King Ranch Oil & Lignite Co., Gulf Prod. Co. 1 45
W. A. Chaney, Eppenauer Drilling Co. 4 50

Completions 4
Production 95
Dry holes 2

WARD COUNTY
J. C. Redman, Tex-Oil Prod. Co. 1 .... dry
Hutchings Stock Assn. (Tr.-A), Gulf Prod. Co. 4 50

Completions 2
Production 50
Dry holes 1

WINKLER COUNTY
L. E. Johnson, Prairie O. & G. Co. 1.... 950

PANHANDLE FIELDS

Summary of Wells Completed

County—	Comp.	Prod.	Dry	Gas
Carson	1	0	0	1
Gray	23	5,158	3	1
Hutchinson	6	402	0	0
Lipscomb	1	0	1	0
Moore	2	360	0	1
Total November	33	5,920	4	3
Total October	50	12,423	7	12
Difference	17	6,503	3	9

Summary of Rigs and Wells Drilling

County—	Rigs	S.D.	Drlg.	Ttl.
Carson	4	0	13	17
Gray	23	10	31	64
Hutchinson	7	7	9	23
Moore	5	0	6	11
Wheeler	1	4	3	8
Miscellaneous	1	7	1	9
Total November	41	28	63	132
Total October	38	27	70	135
Difference	3	1	7	3

WELLS COMPLETED
CARSON COUNTY
S. B. Burnett (Sec. 98), North American Oil & Gas Co. 1 ..... gas

GRAY COUNTY
Morse, Danciger Oil & Ref. Co. 6 30
Sailor, Empire Gas & Fuel Co. 3 417
Bowers, Phillips Pet. Co. 3 15
Schafer, Skelly Oil Co. 22 310
Combs & Worley, The Texas Co. 2 50
Clayton-C, Shamrock Oil & Gas Co. 5.. dry
Sailor, Magnolia Pet. Co. 4 175
Vicars, Skelly Oil Co. 1 480
R. B. Thompson et al, Gulf Prod. Co. 2. 238
R. B. Thompson et al, Gulf Prod. Co. 3. 137
Cubine, Magnolia Pet. Co. 2 ..... gas
Castleberry, Cockrell-McIlroy 4 190
Arnold, Kewanee Oil & Gas Co. 3 275
Arnold, Operators Roy. & Prod. Co. 1.. 240
Harrah, Operators Roy. & Prod. Co. 6.. 500
Vicars, Skelly Oil Co. 2 500
Webb, Amalgamated German-American Oil Corp. 1 ..... dry
Dial, Shamrock Oil & Gas Co. 2 ..... dry
Richardson, British-American Oil and Shell Pet. Corp. 2 400
Archer-B, Empire Gas & Fuel Co. 2.... 230
Sailor, Empire Gas & Fuel Co. 2 294
Baird, Southern Pet. Exp. Co. 1 487
Worley & Reynolds, Wilcox-Pampa Oil Co. 33 190

Completions 23
Production 5158
Dry holes 3
Gas wells 1

HUTCHINSON COUNTY
W. S. Christian, Huber Pet. Co. 1 200
C. R. Garner-C, Midwest Expl. Co. 1.. 105
L. C. Pease (Childers), Phillips Pet. Co. 1-A 32
J. M. Sanford, Great Plains Oil & Gas Co. 1 20
W. S. Christian, Spurlock et al 1-A 20
J. A. Whittenburg, Stansylvania Oil Co. 1 25

Completions 6
Production 402

LIPSCOMB COUNTY
Box T. Ranch, Brown et al 1 ..... dry

MOORE COUNTY
W. Coffee, Shamrock Oil & Gas Co. 1.. 360
A. R. Sneed (Sec. 48), Texas Interstate Pipe Line Co. 1 ..... gas

Completions 2
Production 360
Gas wells 1

SOUTHWEST TEXAS FIELDS

Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rgs.	Drlg.	Ttl.
Mirando	23	400	14	4	24	27	51
Pettus	5	1,248	4	0	5	3	8
Lassiter	1	0	1	0	0	0	0
Darst Creek.	14	8,705	1	0	6	14	20
Saxet Pool .	1	0	1	0	0	3	3
Lion-McFaddin.	1	0	1	0	0	1	1
Chapman ..	4	520	0	0	8	14	22
Miscellaneous	24	720	18	3	33	124	157
Unit Pool ..	0	0	0	0	0	1	1
Dobrowolski..	0	0	0	0	3	2	5
Cartwright..	0	0	0	0	0	2	2
Agua Dulce .	0	0	0	0	0	1	1
White Point.	0	0	0	0	0	1	1
Ttl. Nov. .	73	11,593	40	7	79	193	272
Ttl. Oct. .	124	34,116	50	7	95	188	283
Difference.	51	22,523	10	0	16	5	11

WELLS COMPLETED
WILDCATS—DUVAL COUNTY
Luby, Sloan et al 1 ..... abd
COLE POOL—DUVAL COUNTY
Benavides, Magnolia Pet. Co. 3-A .... gas
S. R. C. POOL—DUVAL COUNTY
Duval Co. Ranch Co., S. R. C. Oil Co. 2 abd
KOHLER POOL—DUVAL COUNTY
Dinn, Co-Operative Drilling Co. 4 ..... gas
WILDCATS—JIM HOGG COUNTY
McCampbell, Wm. H. Barnhart 1 ..... abd
WILDCATS—STARR COUNTY
Kelsey-Bass, Kush & Duerksen 1 ..... abd
Kelsey-Bass, Los Olmos Oil Co. 1 ..... gas
Welch, J. L. Smith 1 ..... abd
WILDCATS—WEBB COUNTY
Esperanza Land & Stock Co., J. L. Elliot 1 ..... abd
COLE POOL—WEBB COUNTY
Benavides, Alamo Drlg. & Leasing 2 gas
Bruni, O. W. Killam 1 ..... abd
CAROLINA-TEXAS POOL—WEBB COUNTY
Jones-Wright, Magnolia Pet. Co. 1 .... abd
MID-OJULES POOL—WEBB COUNTY
Garcia, O. W. Killam 1 ..... abd
RISER POOL—WEBB COUNTY
Killam, O. W. Killam 1 ..... abd
WILDCATS—ZAPATA COUNTY
Don Adams, National Oil Co. 1-A ..... abd
Luther et al, National Oil Co. 2 ..... abd
JENNINGS-CUELLAR POOL—ZAPATA COUNTY
Cuellar, O. W. Killam 31-C 100
JENNINGS-MUCKLEROY POOL—ZAPATA COUNTY
Trevino, S. R. C. Oil Co. 1-C ..... abd
Montemayor, S. R. C. Oil Co. 2 "D" .. 100
Cuellar, S. R. C. Oil Co. 12-B 50
Trevino, W. R. Shankle 14 50
Trevino, W. R. Shankle 15 100
Bustamente, J. H. Winch 1 ..... abd

Wells completed 23
Production 400
Dry 14
Gas 4
Gas production 59,000,000

PETTUS AREA—BEE COUNTY
Block 8, Buchanan and Karona Oil Co.. abd
Block 21, Houston Oil Co. 1 ..... abd
McKinney, Humble Oil Co. 8 ..... abd
Ray, Union Producing Co. 23 1248
Ray, Union Producing Co. 25 ..... abd
LASSITER POOL—BROOKS COUNTY
Holbein-Wormser, Houston Oil Co. 2.. abd
DARST CREEK—GUADALUPE COUNTY
Sallie Wilson, Humble O. & R. Co. 7.. 125
D. D. Baker, Humble O. & R. Co. 9.... 225
Denman, Humble O. & R. Co. 19-A.... 800
Denman, Humble O. & R. Co. 20-A.... 1200
Thos. Dix, La. Oil Ref. Co. 8 1753
Thos. Dix, La. Oil Ref. Co. 9 1350
Thos. Dix, Magnolia Pet. Co. 13..... 360
Thos. Dix, Magnolia Pet. Co. 14 200
Klein, Magnolia Pet. Co. 3 200
Knodel, Magnolia Pet. Co. 4 692
Miller, Magnolia Pet. Co. 5 360
Schmidt-Wiley, The Texas Co. 2 140
Posey, The Texas Co. 7 1300
Knoblock, The Texas Co. 9-A ..... abd

Wells completed 14
Production 8705
Dry 1

SAXET POOL NUECES COUNTY
Dunn, Saxet Oil Co. 7 ..... abd
LION-McFADDIN—VICTORIA COUNTY
McFaddin, Houston Oil Co. 1 ..... abd
CHAPMAN POOL—WILLIAMSON COUNTY
Abbott, Chapman et al D-3 20
Abbott, E. L. Chapman et al 3 200
Abbott, Chapman et al D-4 250
Simmons, Marts et al 1 50

Wells completed 4
Production 520

MISCELLANEOUS WILDCATS
Atascosa County—
Boynton, Frontier Oil Co. 2 ..... abd
Bastrop County—
Trigg, Texas Pet. Products Co. 1 ..... abd
Bexar County—
Cassin, I. L. Dingman 2 ..... abd
Salicky, K. M. S. Pet. Co. 1 ..... abd
Brooks County—
Holbein-Wormser, South. C. O. P. Co. 1 abd
Caldwell County—
Barber, Anderson et al 1 20
Calhoun County—
Thomas, The Texas Co. 1 ..... abd
Comal County—
Seidmann, New Braunfels O. & G. Co. 1 abd
Gonzales County—
Robinson, Mauldin Oil Co. 1 ..... abd
Goliad County—
Ray, Union Producing Co. 29 ..... abd
Guadalupe County—
Seligman, Adams & Lyles 1 ..... abd
Linberger, Miller & Calhoun 1 ..... abd
White, Trinity Drillers 2 ..... abd
Karnes County—
Barnett, Clayton & Pierce 1 ..... abd
Kendall County—
Edmondson, Dickson et al 1 ..... abd
Lee County—
Thomas, J. P. Perry et al 1 ..... abd
Maverick County—
Chittim, Texas Gas Utilities Co. 5 .... gas
Milam County—
White, Service O. & G. Co. 1 ..... gas
San Patricio County—
Carroll, Saxet Oil Co. 1 ..... abd
Williamson County—
M. Meiske, W. D. Anderson 1 ..... abd
Lawrence, W. D. Anderson 7 400
Simmons, Marts et al 5 300
Zavala County—
Pryor, Ed Anglin 5 ..... abd
Pryor, Texas Gas Utilities Co. 1 ..... gas

Wells completed 24
Production 720
Dry 18
Gas 3
Gas production 8,500,000

GULF COAST

Summary of Field Operations
Southeast Texas

	Comp.	Prod.	Abd.	Gas	Rigs	Drlg.	Ttl.
Barbers Hill .	9	8,322	2	0	4	20	24
Batson	2	15	1	0	0	0	0
Big Creek ...	1	0	1	0	1	0	1
Clay Creek ..	1	60	0	0	0	2	2
Esperson	4	358	2	0	1	3	4
Goose Creek .	1	0	1	0	0	0	0
Hankamer ...	0	0	0	0	0	2	2
High Island .	0	0	0	0	1	3	4
Hull	3	1,000	2	0	0	0	0
Humble	4	2,010	2	0	1	9	10
Loat Lake ...	0	0	0	0	0	2	2
Nash	0	0	0	0	0	1	1
North Dayton	0	0	0	0	0	4	4
Orange	1	0	1	0	0	2	2
Orchard	0	0	0	0	0	1	1
Pierce Junc. .	2	500	1	0	1	2	3
Port Neches .	1	0	1	0	0	1	1
Raccoon Bend	4	118	3	0	1	2	3
Refugio	22	5,189	6	3	1	21	22
Saratoga	2	115	0	0	0	1	1
Sour Lake ...	0	0	0	0	0	1	1
South Liberty	2	15	0	0	0	1	1
Spindletop ...	2	0	2	0	0	3	3
W. Columbia .	1	1,224	0	0	0	0	0
Miscellaneous..	9	1,100	8	0	4	34	38
Total Nov. .	71	20,026	33	3	15	115	130
Total Oct. .	80	24,456	19	1	13	136	149
Difference .	9	4,430	14	2	2	21	19

South Louisiana

Bayou Blue ..	0	0	0	0	0	2	2
Bay. Bouillon	0	0	0	0	0	2	2
Edgerly	0	0	0	0	0	1	1
Hackberry ...	6	5,872	0	0	0	2	2
Jennings	1	0	0	0	0	1	1
Lake Pelto ..	0	0	0	0	0	1	1
Lockport	2	1,502	0	0	0	4	4
Sorrento	1	0	1	0	0	0	0
Sulphur	1	1,800	0	0	0	2	2
Sweet Lake ..	0	0	0	0	0	1	1
Vinton	5	1,400	2	0	2	3	5
Welsh	0	0	0	0	1	0	1
Miscellaneous..	7	0	7	0	3	16	19
Total Nov. .	23	10,574	10	0	6	35	41
Total Oct. .	33	14,201	15	0	7	39	46
Difference .	10	3,627	5	0	1	4	5

Gulf Coast

Total Nov. ...	94	30,600	43	3	21	150	171
Total Oct. ...	113	38,657	34	1	20	175	195
Difference .	19	8,057	9	2	1	25	24

TEXAS

BARBERS HILL—CHAMBERS COUNTY
Barber, Humphreys Corp. 1-B ..... abd
Kirby, Humphreys Corp. 8-B 1500
Higgins, McAlbert Oil Co. 1-B 1385
Wilburn, McAlbert Oil Co. 2 60
Woodward, McAlbert Oil Co. 4 330
Fisher, Rio Bravo Oil Co. 1 ..... abd
Smith, Sinclair O. & G. Co. 1 2367
Zadie Fisher, Sun Oil Co. 1 960
Chambers, Yount Lee Oil Co. 16 1320

Total completions 9
Production 8322
Abandoned 2

BATSON—HARDIN COUNTY
McLean-Hooks, Ada Belle Oil Co. 144.. abd
Paraffine, Paraffine Oil Co. 86 15

Total completions 2
Production 15

BIG CREEK—FORT BEND COUNTY
Davis, Navarro Oil Co. 5 ..... abd

CLAY CREEK—WASHINGTON COUNTY
Grote, Sun Oil Co. 3 60

ESPERSON—LIBERTY COUNTY
Davis, Cranfill-Reynolds 6 170
Esperson, Cranfill-Reynolds 9 ..... abd
Esperson, Cranfill-Reynolds 17 188
Vajdak, Union Expltn. Co. 1-A ..... abd

Total completions 4
Production 358
Abandoned 2

GOOSE CREEK—HARRIS COUNTY
Simms Smith, Humble O. & R. Co. 78. abd

HULL—LIBERTY COUNTY
Able, W. B. Flynn 7 ..... abd
Dolbear, Republic Prod. Co. 22 ..... abd
Barrow, The Texas Co. 3 1000

Total completions 3
Production 1000
Abandoned 2

HUMBLE—HARRIS COUNTY
Lee, South Texas Pet. Corp. 3 90
Bender, Sun Oil Co. 14 ..... abd
River, Sun Oil Co. 49 ..... abd
Stevenson, The Texas Co. 43 1920

Total completions 4
Production 2010
Abandoned 2

ORANGE—ORANGE COUNTY
Jackson, Supreme Oil Co. 2 ..... abd

PIERCE JUNCTION—HARRIS COUNTY
Perry, Navarro Oil Co. 1 ..... abd
Fitzgerald, Shaw et al 2-B 500

PORT NECHES—ORANGE COUNTY
W. H. Starks, Gulf Prod. Co. 1 ..... abd

RACCOON BEND—AUSTIN COUNTY
Duncan-State, Humble and Valley 2.... abd
Reese, Humble and Valley 1-B ..... abd
Remmert, Humble and Valley 1-B..... abd
Thompson, Humble and Valley 11..... 118

Total completions 4
Production 118
Abandoned 3

REFUGIO—REFUGIO COUNTY
Rooke, Benedum & Trees 1 ..... abd
Rose Lambert, Houston Oil Co. 1..... 175
Mitchell, Edwin M. Jones 2-A 200
West, Luling O. & G. Co. 1 ..... gas
Moss-Heard, Mission Drlg. Co. 1..... abd
Joe Shay, Mission Drlg. Co. 1..... abd
Ben Shelton, Mission Drlg. Co. 1..... 1200
Tom Heard, Moody Seagraves Prod. 1.. 525
Linney, Moody-Seagraves Prod. Co. 1.. abd
Morgan O'Connor, Moody-Seagraves Prod. Co. 5 104
Rooke, Moody-Seagraves Prod. Co. 1... abd
Strauch, Moody-Seagraves Prod. Co. 1. 650
O'Connor, Morgan Oil Corp. 1 150
Mercy Academy, Phillips Pet. Co. 1.... gas
Reilly, Phillips Pet. Co. 6 ..... gas
Rose Lambert, Phillips Pet. Co. 1..... 180
Mission River, Ed Price 2 150
Hornburg, Royal Oil Co. 1 300
Clint Heard, Saxet Oil Co. 12..... abd
Powers, L. L. Smith 1 840
Fox, Union Prod. Co. 3 38
O'Brien, Union Prod. Co. 1 677

Total completions 22
Production 5189
Abandoned 6
Gas 3

SARATOGA—HARDIN COUNTY
Cotton, Rio Bravo Oil Co. 102-A..... 98
Cotton, Rio Bravo Oil Co. 100-B..... 17

Total completions 2
Production 115

LIBERTY—LIBERTY COUNTY
Mitchell, Sun Oil Co. 23 5
Mitchell, Sun Oil Co. 25 10

Total completions 2
Production 15

SPINDLETOP—JEFFERSON COUNTY
McFaddin, Yount Lee Oil Co. 142..... abd
McFaddin, Yount Lee Oil Co. 144..... abd

WEST COLUMBIA—BRAZORIA COUNTY
Hogg, The Texas Co. 80 1224

MISCELLANEOUS TEXAS
Brazoria County—
Allen, Mills Bennett Prod. Co. 2..... abd
Poole, Mills Bennett Prod. Co. 1..... 1100
Tolar, Freeport Sulphur Co. ..... abd
Calhoun County—
Thomas, The Texas Co. 1 ..... abd
Harris County—
McDade, Golden State Oil Co. 1..... abd
Warren, Humble O. & R. Co. 8..... abd
Liberty County—
Heiskell, Rycade Oil Corp. 1..... abd
Victoria County—
McFaddin, Houston Oil Co. 1..... abd
Wharton County—
Hudgins, H. H. Given 1 ..... abd

Total completions 0
Production 1100
Abandoned 8

SOUTH LOUISIANA
HACKBERRY—CAMERON PARISH
Landry, Calcasieu Oil Co. 2 840
State, Calcasieu Oil Co. 1 2000
Watkins, Calcasieu Oil Co. 22..... 1312
State Land, Yount Lee Oil Co. 32..... 500
State, Yount Lee Oil Co. 33 1200
State, Yount Lee Oil Co. 35 20

Total completions 6
Production 5872

JENNINGS—ACADIA PARISH
Conklin, Cline, Smith & Cline 10..... abd

LOCKPORT—CALCASIEU PARISH
Bayou State, Vacuum Oil Co. 6..... 250

Miller, Yount Lee Oil Co. 1.....1252

Total completions 2
Production 1502

SORRENTO—ASCENSION PARISH

United Land Co., Gulf Ref. Co. 7..... abd

SULPHUR—CALCASIEU PARISH

Fee, Union Sulphur Co. 745.....1300

VINTON—CALCASIEU PARISH

McLean, Edgerly Pet. Co. 2..... abd
Gray estate, Emerson-Moore 1..... abd
G. & N. G., Gulf Ref. Co. 69..... 600
Gray, Vinton Pet. Co. 10..... 300
Wilson, Wilson-Broach 2..... 500

Total completions 5
Production 1400
Abandoned 2

MISCELLANEOUS LOUISIANA

Assumption Parish—

Napoleonville-Dugas & LeBlanc, Texas Gulf Sulphur Co. 2..... abd
Napoleonville—J. and A. Landry, Texas Gulf Sulphur Co. 1..... abd

Avoyelles Parish—

Chatalin, R. A. Tippetts 1..... abd

Iberville Parish—

Des Glaise-Wilbert, Standard Oil Co. 3. abd
Bayou Choctou-Wilbert, Texas Gulf Sulphur Co. 4..... abd

Jefferson Parish—

Delaware Fur Co., Humble O. & R. 1.. abd

LaFourche Parish—

Lessville-L. L. & E., The Texas Co. 1.. abd

Total completions 7
Abandoned 7

EAST CENTRAL TEXAS

Summary of Field Operations

	Comp.	Prod.	Abd.	Gas	Rigs	Drlg.	Ttl.
Anderson	0	0	0	0	1	2	3
Delta	1	0	1	0	0	2	2
Ellis	0	0	1	0	0	0	0
Fannin	0	0	0	0	0	1	1
Franklin	0	0	0	0	1	0	1
Gregg	0	0	0	0	1	0	1
Henderson	3	0	2	0	1	2	3
Hopkins	1	0	1	0	0	0	0
Hunt	1	0	1	0	0	0	0
Kaufman	1	0	1	0	0	0	0
Limestone	0	0	0	0	1	0	1
Navarro	0	0	0	0	0	1	1
Rusk	3	0	3	0	0	6	6
Smith	0	0	0	0	0	1	1
Van Zandt	25	74,302	7	0	1	17	18
Total Nov.	36	74,302	18	0	6	32	38
Total Oct.	47	107,031	16	0	8	25	33
Difference	11	32,729	2	0	2	7	5

DELTA COUNTY

Hayes, Delta County Dev. Co. 1..... abd

ELLIS COUNTY

Walter Hale, Triangle Oil Corp. 1..... abd

HENDERSON COUNTY

Pope Heirs, Cranfill-Germany 1..... abd
Cade, E. L. Chapman 2..... abd
Anthony, Geo. L. Pace 1..... abd

HOPKINS COUNTY

M. Hamilton, Okla.-Tex. Oil Co. ..... abd

HUNT COUNTY

J. S. West, Branson et al 1..... abd

KAUFMAN COUNTY

John Barrow, Otto R. Winter et al ... abd

RUSK COUNTY

J. A. Worrell, Ark. Fuel Oil Co. 1..... abd
McCoffin, Clem S. Clark 1..... abd
W. H. Worrell —, Lauren L. Smith 1 abd

VAN ZANDT COUNTY

C. H. Morris, D. Harold Byrd et al 1.. abd
W. H. Morris, D. H. Byrd 1..... abd
Mrs. E. E. Carroll, Humble O. & R. 3..5500
A. J. Fowler, Humble O. & R. Co. 1....7500
Luther, Inperator Corp. and Paul Vitek 1 ..... abd
Evras, Kraft & Kelsey 1..... abd
Blanch Blewett, L. G. Priest 1..... abd
R. E. Cade, Pure Oil Co. 1.....5000
A. D. Clark, Pure Oil Co. 1.....6000
J. F. Crim, Pure Oil Co. 1..... 72
Mertie Elliott, Pure Oil Co. 1..... 115
Free Methodist Church, Pure Oil Co. 1.6000
A. G. Maxfield, Pure Oil Co. 2.....5000
D. O. Mayo, Pure Oil Co. 1.....5000
M. F. Shirley, Pure Oil Co. 2.....4000
L. A. Smith, Pure Oil Co. 1.....7000
G. C. Stewart, Pure Oil Co. 1.....3500
G. C. Stewart, Pure Oil Co. 2.....4500
O. L. and L. L. Swain, Pure Oil Co. 1..3500
I. W. Thompson, Pure Oil Co. 1..... abd
A. G. Tunnell, Pure Oil Co. 1..... abd
E. B. Tunnell, Pure Oil Co. 3.....6500
W. A. York, Pure Oil Co. 2.....4500
R. A. Tunnell, The Texas Co. 2..... 115
R. A. Tunnell, The Texas Co. 3..... 500

Total completions 25
Production 74,302
Abandoned 7

EAST TEXAS

Summary of Field Operations

	Comp.	Prod.	Dry	Gas	*Rigs	Drlg.	Ttl.
Bowie	0	0	0	0	1	2	3
Camp	0	0	0	0	0	1	1
Cass	0	0	0	0	1	3	4
Harrison	0	0	0	0	1	1	2
Marion	1	0	1	0	0	1	1
Panola	2	0	0	2	3	6	9
Red River	0	0	0	0	0	2	2
Sabine	0	0	0	0	0	1	1
Shelby	0	0	0	0	0	2	2
Total Nov.	3	0	1	2	6	19	25
Total Oct.	2	0	2	0	8	18	26
Difference	1	0	1	2	2	1	1

*Gas production: Panola, 25,760,000 feet.

WELLS COMPLETED

MARION COUNTY

Wm. Hamilton Survey—Fee, W. D. Chew 1 ..... dry

PANOLA COUNTY

B. C. Jordan Survey—Roquemore, Nat. Gas. Prod. Co. 8 ..... gas
E. F. Mitcheson Survey—Brumble, The Texas Co. 2 ..... gas

Gas production 25,760,000

ARKANSAS FIELDS

Summary of Field Operations

	Comp.	Prod.	Dry	Gas	*Rigs	Drlg.	Ttl.
Chicot	0	0	0	0	1	1	
Clay	0	0	0	0	1	1	
Cleburne	0	0	0	0	1	1	
Columbia	0	0	0	0	1	1	
Franklin	0	0	0	0	1	1	
Garland	0	0	0	0	1	1	
Hot Springs	0	0	0	0	2	2	
Johnson	1	0	1	0	3	3	
Lafayette	0	0	0	0	1	0	1
Lawrence	0	0	0	0	1	0	1
Lincoln	0	0	0	0	1	0	1
Little River	0	0	0	0	0	1	1
Logan	0	0	0	0	0	2	2
Madison	0	0	0	0	0	2	2
Miller	0	0	0	0	0	7	7
Ouachita	1	0	1	0	0	5	5
Pike	0	0	0	0	0	2	2
Pope	0	0	0	0	0	1	1
Scott	0	0	0	0	1	1	2
Sebastian	2	0	1	2	0	2	2
Union	3	115	1	0	1	11	12
Van Buren	0	0	0	0	0	1	1
Washington	0	0	0	0	0	4	4
Yell	0	0	0	0	0	1	1
Total Nov.	8	115	4	2	5	51	56
Total Oct.	7	910	4	2	10	46	56
Difference	1	795	0	0	5	5	0

*Gas production: Sebastian 5,500,000 feet.

WELLS COMPLETED

JOHNSON COUNTY

20- 9-25 Hoeing, Conn Grable 1 ..... dry

OUACHITA COUNTY

36-15-15 Usseroy & Arnold, W. J. Thomas 1 ..... dry

SEBASTIAN COUNTY

1- 4-31 Fee, Mansfield Gas Co. 1..... gas
28- 8-30 Bates, Ozark Nat. Gas Co. 1 gas
27- 8-30 Weaver, Ozark Nat. Gas Co. 10 ..... dry

Wells completed 3
Dry 1
Gas 2
Gas production 5,500,000

UNION COUNTY

31-17-15 Burns, Malloy & Co. 7..... 15
10-18-13 Winn, Marine Oil Co. 1-F..... 100
14-18-14 Union Saw Mill, Modisette Drlg. Co. 1 (location)..... abd
28-18-12 J. E. Trammell, H. L. Hunt 1 (junked) ..... dry

Wells completed 3
Production 115
Dry 1
Abandoned 1

NORTH LOUISIANA

Summary of Field Operations

	Comp.	Prod.	Dry	Gas	*Rigs	Drlg.	Ttl.
Avoyelles	1	0	1	0	0	1	1
Bienville	0	0	0	0	0	5	5
Bossier	5	60	1	4	1	10	11
Caddo	3	40	2	0	4	4	8
Caldwell	0	0	0	0	0	1	1
Catahoula	0	0	0	0	0	1	1
Claiborne	1	0	0	1	0	5	5
Concordia	1	0	1	0	0	1	1
DeSoto	4	600	3	0	2	6	8
LaSalle	0	0	0	0	2	1	3
Morehouse	2	0	0	2	1	1	2
Natchitoches	0	0	0	0	0	4	4
Ouachita	1	0	0	1	4	3	7
Red River	0	0	0	0	0	2	2
Richland	8	0	1	7	9	10	19
Sabine	21	2,119	15	0	12	27	39
Tensas	1	0	0	1	0	2	2
Union	3	0	0	3	2	1	3
Webster	1	42	0	0	1	1	2
West Carroll	1	0	1	0	0	0	0
Total Nov.	53	2,861	25	19	38	86	124
Total Oct.	53	2,814	19	23	46	100	146
Difference	0	47	6	4	8	14	22

*Gas production: Bossier 57,318,000; Claiborne, 33,000,000; Morehouse, 28,548,000; Ouachita, 19,880,000; Richland, 179,564,000; Tensas, 19,200; Union, 10,416,569; total 328,745,769 feet.

WELLS COMPLETED

AVOYELLES PARISH

34-1n-3e Chatelaine, R. E. Tippett 1.. dry

BOSSIER PARISH

34-19-11 Johnson, Autrey Oil Co. 1... abd
24-17-12 Jeter, La. Gas & Fuel Co. 3.. gas
11-19-11 Bodcaw, La. Oil Ref. Corp. 13-B ..... abd
22-19-11 Kendricks, H. I. Morgan et et al 10-B ..... gas
26-23-12 Roberson, Palmer Corp. 2... abd
36-23-12 Wilkinson, The Texas Co. 16.. 60
14-17-12 Harris, Woodley Pet. Co. 3... gas
14-17-12 Harris, Woodley Pet. Co. 4... gas

Wells completed 5
Production 60
Gas 4
Gas production 57,318,000

CADDO PARISH

30-12-15 Barr, Bayou State Oil Corp. 4 40
32-21-15 Muslow, Shreveport Oil Corp. 1-A ..... dry
23-21-15 Bashara, Tholl Oil Co. 13... dry

Wells completed 3
Production 40
Dry 2

CLAIBORNE PARISH

6-19- 5 Stevenson, Triangle Drlg. Co. 1 ..... gas

Gas production 33,000,000

CONCORDIA PARISH

46- 8- 9 Pecania Plantation, A. C. Glassell 1 (location) ..... abd
41- 8-10 Pittsfield Plantation, A. C. Glassell (La. G. & F. Co.) 1 dry

DESOTO PARISH

1-11-14 Johnson, Ark.-La. Pipe Line Co. 3 ..... dry
9-13-13 Talbert, Holly Oil Co. 1 .... dry
11-13-14 Tidwell-Tull, Odell & Lawton 1 ..... dry
5-13-13 Farmer, Standard Oil Co. 4-A 600

Wells completed 4
Production 600
Dry 3

MOREHOUSE PARISH

2-20- 4 Sandige, Grecian Bend Gas Co. 1 ..... abd
15-20- 4 Sandidge, La. Gas & Fuel Co. 3 ..... gas
13-20- 4 Cole, Ouachita Nat. Gas Co. 2 gas

Wells completed 3
Abandoned 1
Gas 2
Gas production 28,548,000

OUACHITA PARISH

10-18- 4 Robertson-Ried, Pipes & Mack 1 ..... gas

Gas production 19,880,000

RICHLAND PARISH

14-16- 6 Thomason, Hope Prod. Co. 1 gas
35-16- 6 Noble, La. Gas & Fuel Co. 1-A gas
33-17- 6 Boykin, Palmer Corp. 1-B... gas
33-17- 6 Rhymes-England, Palmer Corp. 12 ..... gas
29-17- 6 Rhymes-England, Palmer Corp. 13 ..... gas
10-16- 6 Harris, Southern Carbon Co. 1 gas
1-16- 6 M. L. McCoy, Southern Carbon Co. 2-C ..... dry
14-16- 6 Thomason, Southern Carbon Co. 1-C ..... gas

Wells completed 8
Gas 7
Dry 1
Gas production 179,564,052

SABINE PARISH

26- 8-12 Parrott, Dixie Oil Co. 1..... dry
18- 7-13 Bowman-Hicks, R. L. Gay 8. dry
31- 8-12 Peterson, R. L. Gay 1..... 100
23-10-13 Logan Oil Co., A. C. Glassell 1 ..... dry
26- 8-12 Danna, Lacy-Burkett Co. 1.. 75
21- 7-11 Hubley, Lohman & Walker 1 dry
2- 7-12 Bowman-Hicks, Loring Oil Co. 13 ..... dry
4- 7-11 Garner, Loring Oil Co. 1..... dry
26- 8-12 Middleton, Loring Oil Co. 1.. dry
26- 8-12 Middleton, Loring Oil Co. 2.. dry
34- 8-12 Sabine Lbr. Co., Loring Oil Co. 2 ..... dry
32- 8-11 Williams, Lyon et al 1 (junked) ..... dry
26- 7-14 Glauque, Magnolia Pet. Co. 1 dry
4- 7-11 Turner, C. D. Neff tr. 1..... dry
4- 7-11 La. Long Leaf Lbr. Co., Pelican Nat. Gas Co. 5 900
11- 7-12 Sabine Lbr. Co., Pelican Nat. Gas Co. 5 300
34- 8-12 Sabine Lbr. Co., Pugh-Hickman Drlg. Co. 1 ..... dry
10- 7-11 Pearce, Sabine Syndicate 1.. 600
18- 8-12 Polly, H. T. Stacy et al 1 (location) ..... abd
25- 8-12 Bowman-Hicks, Standard Oil Co. 1 ..... dry
26- 8-12 Sabine State Bank, Tarver et al 4 ..... dry
5- 7-11 Maines et al, The Texas Co. 1 149

Wells completed 21
Production 2119
Dry 15

TENSAS PARISH

18-10-10 Miller, Stovall Drlg. Co. 1... gas

Gas production 19,200

UNION PARISH

19-22- 4 Tanner, Bahan & Bahan 2... gas
9-21- 3 Norsworthy, Greenwood Prod. Co. 5 ..... gas
14-20- 3 Spencer, E. S. Hall 5 ..... gas

Gas production 10,416,569

WEBSTER PARISH

1-22-11 Denman, Magnolia Pet. Co. 3 42

WEST CARROLL PARISH

17-22-10 Griffeth, Ark.-La. Pipe Line Co. 1 ..... dry

MISSISSIPPI FIELDS

Summary of Field Operations

	Comp.	Prod.	Dry	Gas	*Rigs	Drlg.	Ttl.
Alcorn	0	0	0	0	0	1	1
Attala	0	0	0	0	0	1	1
Chickasaw	0	0	0	0	0	1	1
Clay	0	0	0	0	0	1	1
Grenada	0	0	0	0	1	0	•1
Hinds	2	0	0	2	4	9	13
Humphreys	0	0	0	0	0	1	1
Jasper	0	0	0	0	1	0	1
Lafayette	0	0	0	0	1	0	1
Lauderdale	1	0	1	0	0	0	0
Lincoln	1	0	1	0	0	0	0
Madison	0	0	0	0	0	1	1
Monroe	0	0	0	0	1	4	5
Rankin	4	0	0	4	2	6	8
Warren	0	0	0	0	1	1	2
Winston	0	0	0	0	0	1	1
Yalobusha	1	0	1	0	0	0	0
Yazoo	1	0	1	0	0	0	0
Total Nov.	10	0	4	6	11	27	38
Total Oct.	6	0	3	3	15	28	43
Difference	4	0	1	3	4	1	5

*Gas production: Hinds County, 45,000,000; Rankin, 170,000,000; total 215,000,000 feet.

WELLS COMPLETED

LAUDERDALE COUNTY

2- 7-16 Lackey, Lauderdale O. & G. Co. 1 ..... dry

LINCOLN COUNTY

21- 8- 6 Pat Case, La.-Miss. Oil Co. 1 dry

HINDS COUNTY

15- 5-1e Webster, Hawkeye Gas Co. 1. gas
28- 6-1e Baptist Orphanage, Miss. Pet. Co. 1 ..... gas
28- 6-1e Sharbrough, Universal Gas Co. 1 ..... abd

Gas production 45,000,000

RANKIN COUNTY

12- 5-1e Brown, Cleve Love et al 1... gas
12- 5-1e Pate, Jackson Royalties 1... gas
12- 5-1e Pate, Pearl River O. & G. Co. 2 ..... gas
12- 5-1e Graves, Pioneer O. & G. Co. (Dr. S. D. Raymond et al) 1 gas

Wells completed 4
Gas 4
Gas production 170,000,000

YALOBUSHA COUNTY

14-11- 4 Blackmon, Carter Oil Co. and J. D. Collett 1 ..... dry

YAZOO COUNTY

24-12- 2 Campbell, Amerada Pet. Co. 1 dry

WEST TENNESSEE

Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rigs	Drlg.	Ttl.
Putnam	0	0	0	0	0	1	1
Smith	0	0	0	0	0	1	1
Warren	0	0	0	0	0	1	1
Clay	0	0	0	0	0	2	2
Dickson	0	0	0	0	0	2	2
White	0	0	0	0	0	1	1
Morgan	0	0	0	0	0	2	2
Lincoln	0	0	0	0	0	2	2
Overton	0	0	0	0	0	2	2
Coffee	0	0	0	0	0	1	1
Franklin	0	0	0	0	0	1	1
Cheatham	0	0	0	0	0	1	1
Total Nov.	0	0	0	0	0	17	17
Total Oct.	0	0	0	0	1	16	17
Difference	0	0	0	0	1	1	0

MISSOURI

Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rigs	Drlg.	Ttl.
St. Louis	0	0	0	0	0	4	4
Total Nov.	0	0	0	0	0	4	4
Total Oct.	1	0	1	0	0	4	4
Difference	1	0	1	0	0	0	0

KENTUCKY FIELDS

Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rigs	Drlg.	Ttl.
Warren	1	0	1	0	0	0	1
Barren	1	0	0	1	0	2	2
Allen	0	0	0	0	0	1	1
Ohio	16	380	4	3	2	31	33
Daviess	7	120	3	1	5	25	30
Hancock	3	125	0	1	0	4	4
McLean	5	120	2	0	5	3	8
Henderson	4	15	1	0	0	1	1
Webster	2	0	0	2	0	1	1
Butler	1	0	1	0	0	1	1
Hopkins	0	0	0	0	0	7	7
Muhlenberg	0	0	0	0	0	8	8
Christian	0	0	0	0	0	2	2
Union	1	30	0	0	0	2	2
Breckenridge	0	0	0	0	0	1	1
Logan	0	0	0	0	0	1	1
Todd	0	0	0	0	0	1	1
Caldwell	0	0	0	0	0	1	1
Cumberland	2	65	0	0	0	2	2
Hart	33	4,980	3	5	2	23	25
Greene	1	0	0	1	0	5	5
Wayne	1	0	1	0	1	3	4
Estill	6	3	3	0	0	3	3
Lee-Owsley	3	52	0	0	0	4	4
Lawrence-Johnson	0	0	0	0	0	3	3
Magoffin	3	18	0	0	1	4	5
Clay	0	0	0	0	0	2	2
Knox	0	0	0	0	0	1	1
McCracken	0	0	0	0	0	1	1
Madison	0	0	0	0	0	1	1
Leslie	0	0	0	0	0	2	2
Floyd	0	0	0	0	0	4	4
Bell	1	0	0	1	0	1	1
Total Nov.	91	5,968	19	15	16	151	167
Total Oct.	78	3,244	29	11	11	153	164
Difference	13	2,724	10	4	5	2	3

WELLS COMPLETED

WARREN COUNTY

Bowling Green—Dr. C. E. Francis, Craft & McDonald 1 ..... dry

BARREN COUNTY

Glasgow—H. Allen, C. C. Smith 1 ..... gas

OHIO COUNTY

Hartford—G. W. Patton, Chester Oil 12 30
W. Hamilton, Leeper Oil 5 50
Magnolia Smith, Jas. C. Ellis & Co. 1 100
Tom Coleman, Jas. C. Ellis & Co. 1.. 75
W. H. Lyons & Co., J. R. Pointer & Co. 2 ..... gas
Frank Reynolds, Kentucky Nat. Gas 4 gas
Feemester-Wimsatt, Rame & Thomas 5 15
C. V. Wedding, Cumberland Pet. 3.. 20
A. French, Hupp, Duff & Co. 3..... 10
W. P. Blair, Rex-Pyramid Oil 1..... 60
Lafe Payne, Newton, White & Co. 3.. 20
Tuck Edge, Hall & Garrison 1 ..... dry
Sharp & Johnson, Bigler & Co. 2.... dry
Sim Edge, Fletcher & Co. 1..... dry
G. T. Taylor, Smith & Co. 1..... dry
J. A. Sapp, J. S. Young 1 ..... gas

Wells completed 16
Production 350
Dry 4
Gas 3

DAVIESS COUNTY

Owensboro—H. K. Atherton, S. M. Sirman 6 5
Sims, White & Vickers 1 ..... gas
D. O. Stinson, C. E. Daugherty 3..... dry
Salmen Davis, C. E. Daugherty 3..... dry
Davis heirs 109 acres, Evans & Garrison 15 15
M. D. Wells, Vickers Bros. & Co. 1.. 100
G. Jarbagin, Hupp, Duff & Co. 1... dry

Wells completed 7
Production 120
Dry 3

HANCOCK COUNTY

Pellville—Wm. Bates, Chester Oil 2.... gas
Lewis Richards, D. T. Bolling 3..... 25
Hattie R. Mason, Jas. C. Ellis 1..... 100

Wells completed 3
Production 125
Gas 1

McLEAN COUNTY

Calhoun—Ed. Summers, Cameron, Thompson & Co. 2 100
G. B. and R. L. McManama, Ohio Oil 2 ..... dry
G. B. and R. L. McManama, Ohio Oil 3 50
Sam Harris, Meister & West 1 ..... dry
John Atherton, Geo. Engle & Co. 1.. 30

Wells completed 5
Production 180
Dry 2

HENDERSON COUNTY

Niagara—B. W. Griffin, Jerry Oil 4... 3
Joe Duncan, Imperial O. & G. Products 2 2
Jack Knight, Wittmer Oil & Gas 1.. 10
Jim Cooper, Niagara Drlg. Co. 3 .... dry

Wells completed 4
Production 15
Dry 1

WEBSTER COUNTY

Sebree—Spence, Central Gas Corp. 1... gas
Milton, Central Gas Corp. 1 2

BUTLER COUNTY

Morgantown—Near Gilstrap, Unknown 1 dry

UNION COUNTY

Morgantown—Mrs. Prier Buchannan, Central Gas Corp. 1 30

CUMBERLAND COUNTY

Bear Creek—Willie Brake, Cumberland Oil Co., Inc., 1 50
Lena Kien, Smith & Smith 1 15

Wells completed 2
Production 65

GREENE COUNTY

Greensburg—Walter F. Milby, Unknown 1 ..... gas

WAYNE COUNTY

District 3—Coyle heirs, M. D. Shearer 6 dry

ESTILL COUNTY

District 7—Geo. Reed heirs, McEldowney & Bowser 8 ..... dry
District 8—Buddy Flynn, Edwards & Withers 1 ..... dry
Jeff Scrivner, Benton & Co. 1 ..... dry
Jas. Evans, Cox & Gabbard 4 1
Jas. Evans, Cox & Gabbard 5 1
Hiram Fowler, R. R. Friend & Co. 1 1

Wells completed 6
Production 3
Dry 3

LEE-OWSLEY COUNTIES

District 35—Trabue heirs, Petroleum Exploration 7 10
Trabue heirs, Petroleum Exploration 8 35
Trabue heirs, First Nat. Bank of Jackson 6 7

Wells completed 3
Production 52

JOHNSON-MAGOFFIN COUNTIES

District 25—L. C. Bailey, Cumberland Petroleum 45 5
District 29—Chester Wheeler, Peoples Pittsburgh Trust 3 3
District 31—J. M. Frazier, Hupp, Duff & Co. 10 10

Wells completed 3
Production 18

BELL COUNTY

Pineville—J. A. Hemminger, T. J. Asher & Co. 1 ..... gas

HART COUNTY

Lagrand—B. Richardson, Norris & Co. 1 dry
Will Meadows, Perkins Bros. 1 ..... dry
Trigg Caudel, Wilson & Co. 1..... 350
Lee Wilson, B. F. Wilson & Co. 1... 300
Eli Branstetter, Wilson & Young 1.. 100
W. R. Lester, Richardson & Gragg 1 gas
Cosby church lot, Dulworth-Taylor Co. 1 ..... gas
J. A. Pedigo, Norris & Co. 1 ..... gas
Mrs. Clint Wilson, Ollie Norris 1... gas
Trig Chaney, Harrodsburg Oil & Gas 1 ..... gas
John King, L. C. Young 1 ..... dry
Abe Garvin, Dulwerth-Taylor Co. 2.. 200
Louisa Garvin, Dulworth-Taylor Co. 1 300
Louisa Garvin, Dulworth-Taylor Co. 2 100
Louisa Garvin, Dulworth-Taylor Co. 3 100
Louisa Garvin, Dulworth-Taylor Co. 4 100
Louisa Garvin, Dulworth-Taylor Co. 5 100
B. Richardson, Norris & Co. 1..... 100
Carden-Dowling, Carpenter & Frost 1 800
Payton heirs, Carpenter & Frost 1... 120
Coats, Carpenter & Frost 1 300
W. E. Payton, Rex-Pyramid Oil 1... 100
Luther Rhea-Jewell, Kentucky Nat. Gas 1 200
Buford Ross, LeGrand Oil 1 200
Buford Ross, LeGrand Oil 2 100
Buford Ross, LeGrand Oil 3 100
Buford Ross, LeGrand Oil 4 100
Bob Hatcher, Norris & Davis 2..... 250
Herbert Carter, Unknown 1 100
Ed. Smith, H. F. Norris & Co. 1.... 100
W. E. Payton, Rex-Pyramid Oil 2... 450
E. T. Smith, H. F. Norris & Co. 2.. 250
Geoble Perkins, Harrodsburg Oil & Gas 1 60

Wells completed 33
Production 4980
Dry 3

ROCKY MOUNTAIN AREA

WYOMING

Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rigs	Dlg.	Ttl.
Salt Creek	0	0	0	0	0	3	3
Big Horn	0	0	0	0	0	4	4
Carbon	0	0	0	0	1	11	12
Fremont	0	0	0	0	2	6	8
Converse	0	0	0	0	1	6	7
Hot Springs ...	0	0	0	0	0	3	3
Johnson	0	0	0	0	0	2	2
Lincoln	0	0	0	0	0	4	4
Natrona*	2	67	0	1	1	10	11
Niobrara	1	600	0	0	1	3	4
Park	1	0	1	0	8	16	24
Sublet	0	0	0	0	1	10	11
Sweetwater ...	1	0	0	1	2	7	9
Weston	5	1,462	1	0	2	12	14
Uinta	0	0	0	0	3	12	15
Total, Nov...	10	2,129	2	2	22	109	131
Total, Oct...	19	4,415	3	3	23	113	136
Difference ..	9	2,286	1	1	1	4	5

*Exclusive Salt Creek.

UTAH

Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rigs	Dlg.	Ttl.
Total, Nov.....	2	0	2	0	1	24	25
Total, Oct.....	0	0	0	0	1	29	30
Difference ..	2	0	2	0	0	5	5

NEW MEXICO

Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rigs	Dlg.	Ttl.
De Baca	0		0	0	0	2	2
Eddy	1		0	0	1	6	7
Lea	23	223,550	0	0	7	30	37
McKinley ...	0		0	0	1	9	10
Rio Arriba..	0		0	0	0	5	5
San Juan ...	0		0	0	0	2	8	10
San Miguel..	0		0	0	0	0	5	5
Torrance ...	0		0	0	0	1	2	3
Valencia ...	0		0	0	0	2	7	9
Miscellaneous.	0		0	0	0	2	7	9
Total, Nov.	24	223,550	0	1	14	76	90
Total, Oct.	39	237,593	4	1	13	98	111
Difference..	15	14,043	4	0	1	22	21

COLORADO

Summary of Field Operations

County—	Comp.	Prod.	Dry	Gas	Rigs	Dlg.	Ttl.
Archuleta	0	0	0	0	1	3	4
Boulder	0	0	0	0	1	2	3
Elbert	1	0	1	0	0	2	2
Fremont	3	0	3	0	0	11	11
La Plata	0	0	0	0	1	3	4
Larimer	0	0	0	0	2	8	10
Las Animas ..	0	0	0	0	1	3	4
Moffat	0	0	0	0	5	7	12
Morgan	0	0	0	0	0	2	2
Rio Blanco ...	0	0	0	0	0	3	3
Routt	0	0	0	0	2	2	4
Weld	0	0	0	0	0	4	4
Miscellaneous .	0	0	0	0	1	28	29
Total, Nov...	4	0	4	0	14	78	92
Total, Oct...	5	30	2	2	13	80	93
Difference ..	1	30	2	2	1	2	1

MONTANA

Summary of Field Operations

District—	Comp.	Prod.	Dry	Gas	Rigs	Drlg.	Ttl.
Kevin-Sunburst	6	45	2	1	6	8	14
Ponders	0	0	0	0	0	3	3
Border Fields.	1	15	0	0	1	4	5
Miscellaneous .	4	15	1	2	11	62	73
Total Nov. .	11	75	3	3	18	77	95
Total Oct. .	22	285	7	5	25	75	100
Difference .	12	210	4	2	7	2	5

WYOMING

Wells Completed

2-46- 64 Bock, Henderson, Barbarino et al 1 ..... dry
23-46- 64 McCullough, Yellowstone Pet. Co. 2 50
14-46- 64 Osage Trust Co. 8 800
31-46- 63 Carl Cundy et al 1 12
14-46- 64 Bock, Lambie Oil Co. 3..... 600
13-19-104 Union Pacific, Mt. Fuel Supply 1 ..... gas
25-59- 98 Frannie Oil, Midwest Ref. Co. 31 ..... dry
32-36- 65 Converse Sheep, Ohio Oil 4.. 600
24-36- 85 Dye, Cuyler Oil Co. 1 ..... gas
12-33- 83 Empire State Oil 6 67

Wells completed 10
Production 2129
Gas wells 2
Gas production 13,500,000
Dry and abandoned 2

UTAH

Wells Completed

9-20-23 Moss, Cisco Springs Synd. 1... dry
14-39-1w Pary, Utah Oil Ref. Co. 1.... dry

Wells completed 2
Dry and abandoned 2

NEW MEXICO

Wells Completed

21-17-29 State, Leonard & Levers 4.. gas
29-18-38 State, Amerada Pet. Corp. 3-B 19,667
20-18-38 Grimes, Atlantic Oil Prod. Co. 1 3,078
5-19-38 McKinley, Sun Oil Co. 2.... 4,406
5-19-38 McKinley, Sun Oil Co. 3.... 8,812
29-18-38 State, California Co. 3..... 3,758
29-18-38 State, California Co. 4..... 9,396
20-18-38 McKinley, California Co.... 7,452
33-18-38 State, Continental Oil Co. 3-B 16,718
33-18-38 State, Continental Oil Co. 3-A 3,013
33-18-38 State, Continental Oil Co. 3-A 25,531
29-18-38 Bowers, Humble Oil & Ref. Co. 10 15,098
25-18-37 State, Humble Oil & Ref. Co. 1-A 17,302
29-18-38 Grimes, Humble Oil & Ref. Co. 1 7,128
9-19-38 Terry, Midwest Ref. Co. 26 826
5-19-38 McKinley, Midwest Ref. Co. 6 2,202
5-19-38 McKinley, Midwest Ref. Co. 1 9,526
20-18-38 McKinley, Shell Pet. Corp.
20-18-38 McKinley, Shell Pet. Corp. 1-B 8,489
2-B 23,911
29-18-38 Grimes, Tidal Oil Co. 3..... 16,273
4-19-38 McKinley, Texas Co. 3..... 6,350
32-18-38 State-Northrup, Ohio Oil 5 7,096
30-18-38 State, Ohio Oil Co. 3..... 7,517

Wells completed 23
Production 223,550
Gas production 5,500,000

COLORADO

Wells Completed

1-8s-59 Buick, J. M. Botts et al 1..... dry
26-19-69 Tiger, Standard Oil Co. of Colorado 1 ..... dry
1-19-70 Beltramo, Hammond & Rocco 1 ..... dry
5-20-69 Griffith, M. L. Emo 2..... abd

Wells completed 4
Dry and abandoned 4

MONTANA

WELLS COMPLETED

22-35- 3 Goeddertz, Maharg Oil Co. 6.. gas
28-35- 1 Levnick, Monopeg O. & G. 3.. 20
1-35- 3 Kimball, Montana Gas Co. 1.. dry
27-35- 1 Kaston, Munger Synd. 4..... 10
28-35- 1 Dipple, Nesmont Oil Co. 3..... 15
20-34- 1 Dessel, Thompson Bros. 1..... dry
1-37- 4 Farbo, Rice-Radigan 2..... 15
32-26- 1 Brokaw, Sterling Oil Co. 1..... 15
9- 8-59 Capitol Gas Co. 1-10..... gas
8-10-58 Gas Dev. Co. 58..... gas
28-11-57 Gas Dev. Co. 60..... dry

Completions 11
Production 75
Dry 3
Gas 3

EASTERN FIELDS

Summary of Completed Work

Fields—	Comp.	Prod.	Dry	Gas
Allegany	1	2	0	0
Bradford	30	35	0	1
Venango-Clarion ..	10	7	2	1
Middle Field	7	9	0	0
Butler-Armstrong..	5	4	2	0
S.W. Pennsylvania.	10	8	5	2
West Virginia	83	65	13	48
Southeast Ohio ...	84	759	25	12
Total Nov.	230	889	47	64
Total Oct.	225	1,134	42	63
Difference	5	245	5	1

Summary of Work Under Way

Field—	Rigs	Drlg.	Ttl.
Allegany	0	8	8
Bradford	3	14	17
Venango-Clarion	1	7	8
Middle Field	0	1	1
Butler-Armstrong	2	6	8
Sothwest Pennsylvania ...	2	19	21
West Virginia	32	87	119
Southeast Ohio	16	68	84
Total Nov.	56	210	266
Total Oct.	54	235	289
Difference	2	25	23

ALLEGANY FIELD

Fee, LeSuer Oil Corp. 2

Completions 1
Production 2

BRADFORD

Fee, Grow Farm Oil Co. 5
Loop, N. V. V. Franchot ..... pressure
Loop, N. V. V. Franchot ..... pressure
Rounds, N. V. V. Franchot ..... pressure
Forest Oil Corp. ..... pressure
Niagara Oil Corp. 1
Bingham 268, Wilson & Fitzgibbons 32. 2
Bingham 268, Brink & Brink 63 1
Fee, Lincoln & Brink 44 1
Bingham 268, Brink & Brink 63 1
Smith, Smith Oil Corp. 2
Quintuple, Healey Pet. Corp. 1
Moody, Minard Run Oil Co. ..... gas
Fee, G. W. & C. L. Foster 2
Clark, W. H. Emery 1
O'Neil, Ball and Ryan ..... pressure
Fee, W. W. & W. E. Parmenter 4
Fee, Willrock Producing Co. ..... pressure
Fee, Willrock Producing Co. 1
Fee, Willrock Producing Co. 1
Fee, Willrock Producing Co. 1
Franchot, Babcock Oil Co. 2
Quintuple, Bovaird and Reed 2
Farm 4,053, South Penn Oil ..... pressure
Farm 4,053, South Penn Oil 1
Bingham 321, D. T. Andrus et al 1
Bingham 143, Producers Bank & Trust Co. 9 1
Bingham 143, Producers Bank & Trust Co. 1
Fee, South Penn Oil Co. 1
Whipple, W. C. Middlebrough estate ... 1
Borden, T. P. Thompson, Jr. 2

Completions 30
Production 35
Gas 1
Pressure 7

VENANGO-CLARION

Rice, Rice and Thompson 9 ..... dry
Dana, Franklin Trust Co. 4 1
Manley, Glass and Highfield 30 1
Manley, Glass and Highfield 31 1
Meherten, F. C. Deemer 33 1
Wilbert, O. W. Tracey 2 1
Moyar, S. N. Moyar 91 1
Rickenbrode, Fryburg Motor Co. 3 .... gas
Lytle & Doolittle, National Pet. Co. 1. dry
Fisher, Hepler & Exchange Bank & Trust 33 1

Completions 10
Production 7
Dry 2
Gas 1

MIDDLE FIELD

Borden, M. P. Wasson et ux 1
Baker, C. W. Wasson 1
Berry, T. H. Kervin, Jr. 3
Middaugh, J. B. Randall .....pressure
T. & W. Oil Co., A. E. & W. C. Tompsett 73 1
N. Y. & Dennis Run, R. L. Thomas, Jr., 15 1
Lot 2,593, Hoskins et al 89 2

Completions 7
Production 9

BUTLER-ARMSTRONG

Goepfort, Frederick & Co. 2 ..... dry
Olcus, John J. Olcus 1 ..... dry
Boyd, L. D. & D. B. Steel 3 1
Huleston, Revenswood Oil Co. 1 1
Miller, Campbell and Miller 1 2

Completions 5
Production 4
Dry 2

SOUTHWEST PENNSYLVANIA

WELLS COMPLETED

ALLEGHENY COUNTY

Young heirs, Groveton Oil Co. 1 ..... dry

BEAVER COUNTY

Lynduff, John Clatty 1 1
McNamee, C. McNamee 1 ..... dry

GREENE COUNTY

Rumble, Equitable Gas Co. 1 ..... gas
Shultz, People Natural Gas Co. 1 ..... dry
Garlow, Union G. & O. Co. 1 ..... gas
Longanecker, J. L. Garard & Co. 10 ... 3
Tripp, Freeman & Behm 1 4

WASHINGTON COUNTY

Earley, Manufacturers L. & H. Co. 2... dry
Buchannon, Hopewell O. & G. Co. 2... dry

WEST VIRGINIA

WELLS COMPLETED

MARION COUNTY

Ice, Owens Illinois Glass Co. 1 ..... gas
Hawkenberry, M.W.P.P.S. Co. 1 ..... gas

MONONGALIA COUNTY

Wise heirs, Union G. & O. Corp. 1 ..... dry
Moore, J. H. McDermott-Moore Tex O. Co. 1 ..... gas
Lough, Pittsburgh & W. Va. Gas Co. 2 dry
Tennant, Moore Tex Oil Co. 1 ..... gas

TYLER AND WETZEL COUNTIES

Martin, Ohio O. & G. Co. 2 ..... gas
Boreman, Paul Engle 1 ..... gas
Kerns, Burton Development Co. 1 ..... gas
Barrack, Wetzel Gas Co. 1 ..... gas
Neuenschander, Gale & Gale 9 5
Snodgrass, D. W. Null et al 3 ..... gas
Barr, Hope Const. & Ref. Co. 7,145.... gas
Haskins, Pittsburgh & W. Va. Gas Co. 5,219 ..... dry
Higginbotham, Pittsburgh & W. Va. Gas Co. 5,245 ..... dry
Haskins, Manufacturers L. & H. Co. 3,450 ..... dry

MARSHALL COUNTY

Clark, Frank J. Watson 1 1
McGinnis, Fry & McCracken 3 ..... gas
Dowler, Cameron O. & G. Co. 1 ..... gas

HANCOCK COUNTY

McIntosh heirs, John J. McIntosh 4.... dry
Brenneman, R. J. Braden Co. 46 5
Brenneman, R. J. Braden Co. 45 5

DODDRIDGE COUNTY

Hiley, Pigett & Shinn 1 1
Maxwell, Columbian Carbon Co. 59..... gas
Underwood, J. H. Pentz 4 5

RITCHIE COUNTY

Baker, Pittsburgh & W. Va. Gas Co. 1 dry
Wolf, W. H. Bickel 1 ..... dry
Rogers, W. A. Bickerstaff et al 1 ..... dry
Lanigher, Warrior Oil Co. 1 1
Cox, Reno Oil Co. 2 ..... gas
W. Va. tract, J. W. Jones 28 1

CLAY COUNTY

Brown, Goshorn & Swann, United Fuel Co. 4,073 ..... gas
Swarts, Thompson Gas Co. 26 ..... gas
Grose & Cunningham, Thompson Gas Co. 23 ..... gas
Horan, Pure Oil Co. 3 ..... gas
Brown, Goshorn & Swann, United Fuel Gas Co. 4,276 ..... gas
Blue Creek Coal Land Co., G. L. Cabot 1 dry
Summers, Pure Oil Co. 1 ..... gas

WOOD COUNTY

McDougal, Elias & Gordon 3 1
Mayo, L. W. Bickle 1 ..... dry

WIRT COUNTY

Showalter, Lee Batton et al 1 ..... dry

GILMER COUNTY

Hiney, Carnegie Nat. Gas Co. 2 10
Lowther, Carnegie Nat. Gas Co. 1 ..... gas
Spurgeon, Philadelphia Oil Co. 1 ..... gas
Bush heirs, A. E. Ellis et al 1 ..... gas
Linger, Pittsburgh & W. Va. Gas Co. 1 gas
Hiner, Carnegie Nat. Gas Co. 2 ..... gas
Woofter, Midland O. & G. Co. 1 1

ROANE COUNTY

Moore et al, United Fuel Gas Co. 4,252 gas

CALHOUN COUNTY

Bronnon, Kenney Simmons 1 ..... gas
Maze, W. S. Dailey et al 1 ..... gas
Fling, Chemical Oil Co. 2 ..... gas
Hardman, F. F. McIntosh 2 ..... gas
Slider, F. F. McIntosh 5 ..... gas
Starcher, Rocksdale O. & G. Co. 1 .... gas
Wagner, G. L. Cabot 707 ..... dry

BOONE COUNTY

Federal Coal Co., Pure Oil Co. 46 .... gas
L. R. and P. Tract B, Pure Oil Co. 39.. 26
Williams Coal Co., Pure Oil Co. 252.... 8
Arbogast, G. L. Cabot 7 ..... gas
Federal Coal Co., G. L. Cabot 44 ..... dry

KANAWHA COUNTY

Quincy Coal Co., G. L. Cabot 21 ..... gas
Pickens, Cambridge Gas Co. 1 1
Canneton Fuel Co., Cannelton Coal Co. 14 ..... gas
Winifrede Co., Winifrede Co. 3 ..... gas
Winifrede Co., Winifrede Co. 5 ..... gas
Sunday Creek Co., United Fuel Gas Co. 4,267 ..... gas

WAYNE COUNTY
Jackson, Meabon & Huffman 1 1
Staley, Ohio & Kentucky Gas Co. 1... dry
MINGO COUNTY
Red Jacket C. C. & C. Co., Red Jacket O. & G. Co. 14 ..... gas
JACKSON COUNTY
McCarty, South Penn Oil Co. 14 12
MASON COUNTY
Hartford Fuel Co., Berea O. & G. Co. 5 1
Thornton, Federal Fuel Co. 1 ..... gas
Williamson, Federal Fuel Co. 1 ..... dry
LEWIS COUNTY
Hall, Hope Natl. Gas Co. 1 ..... dry
Flesher, Fred Flesher 1 ..... gas
Aliman, Charles Moran 1 ..... gas
CABELL COUNTY
Chambers, W. H. Kirtley & Co. 1 ..... gas
Sunderland, Harshbarger O. & G. Co. 61 gas
Chapman, Larner Gas Co. 113 ..... gas
Frazier, Wilson & Mowery 1 ..... gas
MONROE COUNTY
Holstein, United Fuel Gas Co. 4,209.... dry
FAYETTE COUNTY
New River Colliery Co., Montgomery Gas Co. 7 ..... gas

CENTRAL OHIO FIELDS

Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rigs	Drlg.	Ttl.
Ashland	12	32	4	5	2	16	18
Medina	17	275	9	0	1	12	13
Lorain	5	0	5	1	2	8	10
Wayne	4	0	2	2	1	6	7
Holmes	2	0	1	1	0	5	5
Cuyahoga	0	0	0	0	1	0	1
Ashtabula	0	0	0	0	0	2	2
Richland	0	0	0	0	3	3	6
Knox	1	0	1	0	1	10	11
Coshocton	3	13	1	0	3	3	6
Summitt	2	0	0	2	0	10	10
Licking	6	232	3	1	5	7	12
Muskingum	9	63	1	5	5	13	18
Athens	13	0	4	9	2	13	15
Lawrence	0	0	0	0	2	3	5
Tuscarawas	2	110	1	0	4	5	9
Stark	3	0	1	1	1	11	12
Fairfield	2	0	0	2	0	2	2
Guernsey	4	30	2	0	0	7	7
Belmont	2	0	0	2	2	7	9
Gallia	0	0	0	0	0	1	1
Carroll	1	5	0	0	0	0	0
Scioto	0	0	0	0	0	1	1
Pike	0	0	0	0	0	2	2
Lake	0	0	0	0	1	0	1
Geauga	0	0	0	0	0	1	1
Total Nov.	88	760	35	31	36	148	184
Total Oct.	110	1,054	39	37	46	161	207
Difference	22	294	4	6	10	13	23

WELLS COMPLETED
ASHLAND COUNTY
Greene—John Criswell, Ohio Fuel Gas 1-5,325 ..... dry
Jackson—G. M. Harbaugh, Ohio Fuel Gas 1-5,296 ..... gas
B. M. Stillman, Ohio Fuel Gas 1-5,299 gas
R. J. Welch, Ohio Fuel Gas 2-5,330 . gas
Orange—R. A. Straita, Ohio Fuel Gas 1-5,323 ..... dry
Federal Land Co., Ohio Fuel Gas 1-5,357 ..... gas
Lake—C. I. Sellers, Robinson & Co. 5.. 2
Fred Bird, Robinson & Co. 3..... 5
Henry Mosher, Wile & Co. 4 ..... dry
Harry Horn, Goiden Brown Oil & Gas 4 25
Perry—Ora B. Morr, Ohio Fuel Gas 1-5,297 ..... gas
Melvin Devault, D'Lano & Co. 4... dry
Wells completed 12
Production 32
Dry 4
Gas 5
MEDINA COUNTY
Harrisville—W. L. Barnhart, Ohio Fuel Gas 1-5,336 ..... dry
G. P. Momg, Myers Bros. 3 ..... dry
Litchfield—F. W. Anderson, Carmen & Co. 6 ..... dry
Medina—Geo. Coleman, Barnhart & Co. 1 ..... dry
Chatham—Marcus A. Frank, Edson & Co. 7 10
Marcus A. Frank, Edson & Co. 8 ... 16
Geo. W. Packard, Edson & Co. 5... 138
Geo. W. Packard, Edson & Co. 6, 7, 10 dry
Geo. W. Packard, Edson & Co. 8 35
Geo. W. Packard, Edson & Co. 9..... 26
Archie Packard, Edson & Co. 9..... 20
Daniel Ress, Edson & Co. 28..... 1
W. and R. Ripley, Edson & Co. 35.. dry
Howard Broadsword, Curtis & Co. 4. dry
Thos. Brown, Jr., Curtis & Co. 3.... 30
Wells completed 17
Production 275
Dry 9
LORAIN COUNTY
Carlisle—Sarah E. Booth, Ohio Fuel Gas 1-5,332 ..... gas
Harold E. Rowley, Ohio Fuel Gas 1-5,344 ..... dry
J. and O. Sims, A. F. Keck & Co..... dry
Jas. A. Smith, Wiser Oil 1 ..... dry
Ridgeville—Milo Sranden, Wiser Oil 1 dry
Pittsfield—Terry C. Whitney, Wiser Oil 1 ..... dry
Wells completed 6
Production 5
Gas 1
WAYNE COUNTY
Congress—Anna Younker, Short & Co. 3 gas
Chester — Jac. Hagerman, Haron & George 2 ..... gas
C. W. Bowman, Ohio Fuel Gas 1-5,333 dry
W. A. Firestone, Hulse & Kundtz 2.. dry
Wells completed 4
Dry 2
Gas 2
KNOX COUNTY
Pike—Fred Dowds, Perkins & Co. 1... dry
HOLMES COUNTY
Richland—R. E. Hawkins, Ohio Fuel Gas 1-5,314 ..... gas
Hershal Jones, Ohio Fuel Gas 1-5,335 dry
Wells completed 2
Dry 1
Gas 1
COSHOCTON COUNTY
Perry—Elmer Clark, Preston Oil 1-1,451 dry
Pike—Henry Noland, Wm. Stevens 2 . 3
Tuscarawas—G. and E. Stockman, Bell Bros. 2 10
Wells completed 3
Production 13
Dry 1
SUMMITT COUNTY
Franklin—N. C. Slater, East Ohio Gas 2 gas
Greene—Chas. A. Smith, Smith & Co. 1 gas
Wells completed 2
Gas 2
LICKING COUNTY
Fallsburg—Lucy Vanwinkle, Bebout & Co. 1 112
Hanover—Minor-Bannon, Hope Const. & Ref. Co. 3 120
Mary Ann—Wm. Strickler, Armbruster & Strickler 6 ..... gas
Eden—J. B. Colville, Ralph Bros. 2.... dry
Jas. Claggett, I. C. Robinson 1 ..... dry
Madison—Orville Wise, E. J. Edman 2 dry
Wells completed 6
Production 232
Dry 3
Gas 1
MUSKINGUM COUNTY
Washington—John Mahaney, Ohio Fuel Gas 1-5,256 ..... gas
Julia D. Wolf, Ohio Fuel Gas 1-5,257 gas
Butts-Inhoff, Atha Co. 1 3
Hopewell—Allie Michael, Hopewell Gas & Fuel 4 25
Jackson—Albert Holman, Pure Oil 3.. 35
Perry—L. M. Bryan, Atha Co. 1 .... dry
E. H. Derry, Ohio Fuel Gas Co. 1-5,258 gas
Brush Creek—L. L. Lloyd heirs, Ohio Fuel Gas 1-5,301 ..... gas
E. J. Swingle, Hopewell Gas 3..... gas
Wells completed 9
Production 63
Dry 1
Gas 5
ATHENS COUNTY
Berne—C. O. Grimes, Ohio Fuel Gas 4-5,363 ..... gas
Lodi—S. T. Webb, Ohio Fuel Gas 1-5,329 gas
Grace A. Day, Ross & Stewart 2 ... dry
Alexander—Chas. B. Wood, Park Bowser & Co. 3 ..... gas
Carthage—Martin Koehler, Ohio Fuel Gas 1-5,370 ..... gas
F. W. Chapman, Shady River Oil & Gas 12 ..... gas
York—H. B. Scholl, Whitmer & Co. 1. dry
Wm. Powell, Noah Andrews 1 ..... gas
Cannan—J. C. McClanahan, Ohio Fuel Gas 1-5,322 ..... gas
H. M. Roach, Ohio Fuel Gas 1-5,372. gas
Geo. Brechtel, Lewis Jones 1 ..... dry
Elmer Halbert, Nuzum & Co. 4 .... gas
Troy—F. H. Shrendt, Bowser Oil & Gas 2 ..... dry
Wells completed 13
Dry 4
Gas 9
TUSCARAWAS COUNTY
Washington—T. B. and R. Shearer, Gordon Oil 4 110
Warrick—Adam Boltz, Blackstone & Co. 1 ..... dry
Wells completed 2
Production 110
Dry 1
STARK COUNTY
Lake—Emma S. Donot, Brendall & Co. 2 dry
Jackson—Henry C. Rudy, East Ohio Gas 1 ..... gas
Wells completed 2
Dry 1
Gas 1
FAIRFIELD COUNTY
Richland — Fred McAfee, Patton & Bishop 1 ..... gas
J. and G. A. Shaw, Sturm & Co. 3.. gas
Wells completed 2
Gas 2
GUERNSEY COUNTY
Monroe—J. and R. Gadd, East Ohio Gas 2 ..... dry
Wheeling—Amanda C. Robinson, Ohio Fuel Gas 4-1,449 20
G. M. Wilson, Ohio Fuel Gas 3-1,450 10
F. L. Euga, Hopewell Oil & Gas 3.. dry
Wells completed 4
Production 30
Dry 2
BELMONT COUNTY
Somerset—Butler-Davis, Washmuth-Callahan Gas 1 ..... gas
Robt. Roe, M. W. Fulton & Co. 1... gas
Wells completed 2
Gas 2
CARROLL COUNTY
Orange—Frank M. Forbes, Local Oil 1.. 5

SOUTHEAST OHIO
WELLS COMPLETED
MONROE COUNTY
Zwick, Cunningham et al 1 1
PERRY COUNTY
Moore, Gas Producing Co. of Ohio 1... dry
Brown, Mid East Co. 1 ..... gas
Emmert, G. Berlin et al 1 ..... gas
GUERNSEY COUNTY
Robinson, Preston Oil Co. 4 28
Wilson, Preston Oil Co. 3 12
Gadd, Ohio Producing & Ref. Co. 2... 65
Beal, George Jewell et al 1 12
MUSKINGUM COUNTY
Boyce, Jas. E. McLaughlin 6 3
Stockum, Bell Brothers & Co. 2 2
Cowden, Fetty & Louchery 1 ..... dry
Swingle, Gas Producing Co. of Ohio 1 . gas
Boyd, Ohio Fuel Supply Co. 1 ..... gas
Rusk, Arthur McCune & Co. 2 5
Imhoff & Butt, Atha Oil Co. 1 ..... gas
Border, Wittmer O. & G. Properties 1.. gas
Derry, Ohio Fuel Gas Co. 1 ..... gas
Wolf, Ohio Fuel Gas Co. 1 ..... gas
Mahaney, Ohio Fuel Gas Co. 1 ..... gas
Michael, Hopewell Fuel & Gas Co. 4... 25
Holman, Pure Oil Co. 3 50
LICKING COUNTY
Minor-O'Bannon, Hope Const. & Ref. Co. 3 50
Wise, E. J. Edmonds 1 ..... dry
Colville, Ralph Brothers 1 ..... dry
Myers, I. C. Robinson et al 1 35
Van Winkle, Bebout et al 1 100
Chaney, Kundtz Hulse, Inc. 13 6
Wright, F. B. Settles 2 2
Livingston, Preston Oil Co. 2 1
TUSCARAWAS COUNTY
Little & Swigert, Capital Drilling Co. 4 65
Gadd, Ohio Prod. & Ref. Co. 3 ..... dry
Shearer, Gordon Oil Co. No. 3 et al 4.. 110
HOLMES COUNTY
Haudenschild, Ohio Fuel Gas Co. 1..... dry
ASHLAND COUNTY
Doererr, I. C. Robinson et al 1 ..... dry
Sellers, Great Lakes Oil Co. 5 8
Mosher, S. & W. O. & G. Co. 3 5
Horn, Gold Brown O. & G. Co. 4 8
Doererr, Robinson, Bode et al 2 ..... dry
COSHOCTON COUNTY
Slockum, Bell Bros. et al 2 2
Noland, Stephenson Bros. 2 4
Clark, Preston Oil Co. 2 ..... dry
ATHENS COUNTY
Building & Loan Co., Wittmer O. & G. Co. 1 ..... dry
Barnhill, Ohio Fuel Gas Co. 2 ..... dry
Wood, Park Bowser et al 1 ..... gas
Wilson, Kackelmacher estate 1 ..... dry
VINTON COUNTY
Nelson, Co-operative Oil Co. 2 1
NOBLE COUNTY
Benj Corp., Ogle & Ogle 18 1
Benj Corp., Ogle & Ogle 17 ..... dry
WASHINGTON COUNTY
Becker, R. O. Wooster et al 1 1
Kinsey, Jones Drilling Co. 1 40
Schneider, A. J. Wiper et al 1 ..... dry
Moore, Thomas Oil Co. 1 ..... dry
Gearhart, Morningstar Oil Co. 1 ..... dry
Biehl, T. N. Curtis et al 7 2
Lauer, Bay & Weppler 2 1
Becker, R. O. Wooster et al 2 ..... dry
Neuberger, George Chichester et al 1 .. dry
McGrew, Swingle Oil Co. 1 ..... dry
Reed, H. F. McTaggart et al 1 ..... gas
Leasure, Robt. Turner et al 13 1
Gearhart, C. E. Smith et al 4 ..... gas
Payne, Homer Newhart et al 4 5
Freed, Pure Oil Co. 31 ..... dry
MEDINA COUNTY
Ross, E. R. Edson & Son Co. 28 1
Franks, E. R. Edson & Son Co. 4 3
Franks, E. R. Edson & Son Co. 5 3
Ripley, E. R. Edson & Son Co. 31 6
Ripley, E. R. Edson & Son Co. 32 ..... dry
Ripley, E. R. Edson & Son Co. 33 ..... dry
G. W. Packard, E. R. Edson & Son Co. 8 20
G. W. Packard, E. R. Edson & Son Co. 9 5
A. E. Packard, E. R. Edson & Son Co. 8 5
A. E. Packard, E. R. Edson & Son Co. 9 5
Brown, Curtis & Eakin 2 5
Brown, Curtis & Eakin 3 25
Broadsword, Curtis & Eakin 3 ..... dry
JEFFERSON COUNTY
Miller heirs, J. H. Beren 1 2
Cathers, Richard Graham et al 1 5
Welt, Boyce Drilling Co. et al 5 10
Swickard, Sapp Brothers 1 1
MEIGS COUNTY
Stobart, H. B. Goddard et al 6 ..... dry
BELMONT COUNTY
Dement & Howell, W. C. McBride, Inc. 4 dry
FAIRFIELD COUNTY
Holliday, Hopewell Fuel Gas Co. et al 1 10
HARRISON COUNTY
McLandsborough, Frank Quinn 13 2

LIMA FIELD

Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rgs.	Dlg.	Ttl.
Wood	0	0	0	0	1	0	1
Hancock	2	130	0	0	0	1	1
Sandusky	2	0	0	2	0	1	1
Mercer	0	0	0	0	0	1	1
Seneca	4	22	1	1	0	7	7
Ottawa	0	0	0	0	0	2	2
Shelby	0	0	0	0	0	1	1
Hardin	10	25	1	7	5	9	14
Wyandot	2	0	1	1	0	2	2
Erie	0	0	0	0	0	1	1
Total Nov.	20	177	3	11	6	25	31
Total Oct.	16	124	1	8	4	28	32
Difference	4	53	2	3	2	3	1

WELLS COMPLETED
WOOD COUNTY
Montgomery—Bertha I. Phillips, Onsel Bros. 4, 5 ..... abd
Wm. Wollam, Onsel Bros. 11 ..... abd
A. Emerine, Ohio Oil 5, 6, 7, 8 ..... abd
Nancy E. Snyder, Ohio Oil 2, 3, 4.... abd
Perry—Fred Hamilton, Hattie M. Hamilton & Co. 7 ..... abd
Abandoned 11
HANCOCK COUNTY
Biglick—H. B. Kurtz, R. W. Kirk & Co. 3 100
Liberty—Elias Crow, Base Line Oil 10.. 30
Wells completed 2
Production 130
AUGLAIZE COUNTY
Moulton—W. E. Cook, Young & Geselchen 2 ..... abd
Mary Tester, Young & Geselchen 2.. abd
Abandoned 2
SANDUSKY COUNTY
Washington—H. Bloom, W. C. Richards & Co. ..... gas
N. Bowersox, W. C. Richards & Co. 1 gas
Wells completed 2
MERCER COUNTY
Butler—Frank Bruns, A. A. Lauber 1, 2 abd
VAN WERT COUNTY
Liberty—W. M. Price, N. T. Steoudt & Co. 1 ..... abd
Wm. H. High, N. T. Steoudt & Co. 1 abd
Abandoned 2
SENECA COUNTY
Pleasants—Ida M. Rosenberger, Marvela Oil & Gas 4 ..... dry
Liberty—J. Swartzmiller, Kansas-Ohio Oil & Gas 1 22
Eden—John Feigelist, O. S. Barnaby & Co. 1 ..... gas
Bloom—P. Stuckey, C. L. Williams 1... dry
Jackson—Reinbold heirs, Ohio Oil 2, 6, 7, 9, 10, 14 ..... abd
Reinbold heirs north 80 acres, Ohio Oil 4 ..... abd
Lewis Boyd, Onsel Bros. 4, 5 ..... abd
Ira L. Soule, Onsel Bros. 8, 10, 11 ... abd
Wells completed 4
Production 22
Dry 2
Gas 1
Abandoned 12
OTTAWA COUNTY
Allen—P. Hartman, Ohio Oil 3 ..... abd
Aug. Schimming, Ohio Oil 4 ..... abd
Abandoned 2
SHELBY COUNTY
Cynthian—Anna Ellerman, Ellerman Oil 4 ..... abd
J. W. Klocker, Ellerman Oil 2 ..... abd
Abandoned 2
HARDIN COUNTY
Pleasants—V. E. Ruhlen, Wiser Oil 1.. gas
Minnie Burnison, Pleasant Oil & Gas 2 gas
L. A. C. Whitmore, Penn Oil & Gas 1 dry
Jonathan Oats, Pleasant Oil & Gas 1 gas
Newton Martin, M. J. Lynch 2 15
Jacob Kurt, Barnaby & Co. 3, 4 ..... gas
G. Schwemmer, Bert Sheldon 1 ..... gas
Fee, Hardin County Quarries 1 ..... gas
Cessna — Phoebe L. Hardner, Egan & White 1 10
Wells completed 10
Production 25
Dry 1
Gas 7
WYANDOT COUNTY
Richland—Mollie Meeks, Galliger & Co. 1 ..... gas
Tymochtee — John Higgins, Jones & Coyle 1 ..... dry
Wells completed 2
Dry 1
Gas 1

ILLINOIS FIELDS

Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rigs	Drlg.	Ttl.
Clark	1	5	0	0	0	2	2
Crawford	5	18	2	0	1	2	3
Lawrence	3	8	1	0	0	0	0
Wabash	2	30	1	0	1	2	3
St. Clair	0	0	0	0	0	8	8
Effingham	0	0	0	0	0	1	1
Randolph	0	0	0	0	0	2	2
Monroe	1	0	1	0	0	3	3
Washington	0	0	0	0	0	1	1
Clinton	0	0	0	0	0	1	1
Madison	0	0	0	0	0	1	1
Total Nov.	12	61	5	0	2	23	25
Total Oct.	24	380	8	1	2	28	30
Difference	12	319	3	1	0	5	5

WELLS COMPLETED
CLARK COUNTY
Johnson—Robt. Ramsey, Pure Oil 1... 5
CRAWFORD COUNTY
Prairie—E. E. Barrett, Watson & Co. 2 dry
J. Umstot No. 2, Watson & Co. 1.... 5
Honey Creek — Rudolph Weger, Craig, Lowrie & Co. 13 3
R. A. Funk No. 2, John Phipps 9 .... dry
Montgomery—John Magill, W. C. McBride, Inc., 1 10
Wells completed 5
Production 18
Dry 2
LAWRENCE COUNTY
Dennison—J. W. Clark No. 2, John Phipps 1 2
Wm. E. Robins No. 3, John Phipps 8 6
C. C. Ackman, Chas. Karnes & Co. 2.. dry
Wm. T. Buchannan, Ohio Oil 1 ..... abd
Brunson hrs., Ohio Oil 2, 4, 8 ..... abd
H. D. Hinkle, Silurian Oil 13 ..... abd
Bridgeport—W. H. Rogers, Ohio Oil 15. abd
Lawrence—C. E. Lawson, Ohio Oil 5... abd
Wells completed 5
Production 9
Dry 1
Abandoned 7
WABASH COUNTY
Wabash — Harrison Buchannan, J. D. Toomey & Co. 13 30
Ed Wright, Edrite Oil 4 ..... dry
Wells completed 2
Production 30
Dry 1
MONROE COUNTY
Renault—Demint-Hardy, Alspach & Co. 1 ..... dry
MARION COUNTY
Sandoval—L. Stein, Southwestern Oil & Gas 9 ..... abd

INDIANA FIELDS

Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rgs.	Dlg.	Ttl.
Jay	3	50	1	1	0	2	2
Adams	0	0	0	0	0	1	1
Huntington	0	0	0	0	0	3	3
Gibson	0	0	0	0	0	2	2
Pike	2	1	0	1	0	4	4

Daviess	1	0	1	0	0	3	3
Sullivan	1	0	1	0	0	4	4
Vigo	0	0	0	0	0	1	1
Warrick	0	0	0	0	0	3	3
Spencer	2	70	0	0	0	4	4
White	0	0	0	0	0	1	1
Marshall	0	0	0	0	1	1	2
Monroe	0	0	0	0	1	1	2
Floyd	1	0	1	0	0	0	0
Dubois	0	0	0	0	0	1	1
Knox	0	0	0	0	0	3	3
Vandeburg	1	0	0	1	0	0	0
Perry	3	10	1	0	0	6	6
Crawford	0	0	0	0	0	2	2
Lagrange	0	0	0	0	0	1	1
Posey	0	0	0	0	0	2	2
Putnam	0	0	0	0	0	1	1
Dekalb	0	0	0	0	0	1	1
Laporte	0	0	0	0	0	1	1
Porter	1	0	0	1	0	0	0
Allen	0	0	0	0	0	1	1
Hamilton	1	15	0	0	0	0	0
Madison	0	0	0	0	0	1	1
Rush	0	0	0	0	0	1	1
Washington	1	0	1	0	0	0	0
Harrison	1	0	0	1	0	0	0
Total Nov.	18	146	6	5	2	51	53
Total Oct.	25	113	6	11	4	43	47
Difference.	7	33	0	6	2	8	6

WELLS COMPLETED

JAY COUNTY

Wayne—Smiths Stone Quarry, Milligan & Brown 1 ..... gas
Red Key—M. O. Hoppes lot, Unknown 1 dry
Penn—Davis Bros., Wm. M. Stewart & Co. 10 50
Hartford—P. Mosier, J. L. Peters, Rec. 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15.... abd

Wells completed 3
Production 50
Dry 1
Gas 1
Abandoned 11

PIKE COUNTY

Washington—Aaron George, C. C. Taliaferro, Jr., 5 ..... gas
Logan—H. Atkinson, United Oil Corp. 4 1

Wells completed 2
Production 1
Gas 1

DAVIESS COUNTY

Harrison—Ageton, Norris, Patterson & Co. 2 ..... dry

SULLIVAN COUNTY

Hamilton—W. C. Jamison, Fred F. Bays 1 ..... dry

SPENCER COUNTY

Huff—Mary Berg, Roger E. Williams & Co. 1 45
Ohio—Bretz, Hamilton, Atwater & Co. 1 25

Wells completed 2
Production 70

FLOYD COUNTY

New Albany—Nate Morton, W. E. Hines & Co. 1 ..... dry

VANDEBURG COUNTY

Stringtown—Geo. Hoenby, Vandeburg Oil Co. 1 ..... gas

PERRY COUNTY

Tobin—Walter Haefle, T. F. Seltz & Co. 5 5
Walter Haefle, T. F. Seltz & Co. 6 5
Paul Hyde, Glenn & Dice 1 ..... dry

Wells completed 3
Production 10
Dry 1

PORTER COUNTY

Naumee—Arthur Hanrahan, San Juan Coal & Oil 1 ..... gas

HAMILTON COUNTY

Washington — Walter Edwards, L. A. Holeman & Co. 1 15

WASHINGTON COUNTY

Brown—Levin, B. Levin Co. 1 ..... dry

HARRISON COUNTY

Boone—James Shields, Indiana Utilities Corp. 1 ..... gas

MICHIGAN FIELDS

Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rigs	Drlg.	Ttl.
Muskegon	3	50	1	1	2	5	7
Isabella	20	1,297	9	2	24	35	59
Midland	0	0	0	0	1	10	11
Kent	0	0	0	0	1	2	3
Ottawa	0	0	0	0	0	2	2
Oceana	0	0	0	0	0	6	6
Mason	0	0	0	0	0	4	4
Manistee	1	0	1	0	0	0	0
Lake	0	0	0	0	0	2	2
Cass	0	0	0	0	0	2	2
Tuscola	0	0	0	0	0	1	1
Bay	1	0	1	0	1	0	1
Moncalm	0	0	0	0	1	0	1
Newyago	2	0	2	0	0	7	9
Clare	0	0	0	0	0	2	6	8
Emmett	0	0	0	0	0	1	1
Eaton	0	0	0	0	1	1	2
Kalkaska	0	0	0	0	1	1	2
Berrien	0	0	0	0	0	1	1
Iosco	0	0	0	0	2	0	2
Massaukee	0	0	0	0	1	0	1
Delta	0	0	0	0	1	0	1
Montmorency	0	0	0	0	1	0	1
Kalamazoo	0	0	0	0	1	0	1
Monroe	0	0	0	0	0	1	1
Lenawee	1	0	1	0	0	0	0
Washtenaw	0	0	0	0	0	2	2
Jackson	0	0	0	0	1	0	1
Gratiot	0	0	0	0	4	3	7
Shiawassee	0	0	0	0	3	1	4
Livingston	2	0	1	1	0	2	2
Sanilac	0	0	0	0	3	0	3
Van Buren	0	0	0	0	0	2	2
Cheboygan	0	0	0	0	0	1	1
Allegan	0	0	0	0	4	4	8
Leelanau	0	0	0	0	1	0	1
Osceolo	1	0	1	0	1	0	1
Mecosta	0	0	0	0	1	1	2
St. Clair	0	0	0	0	2	0	2
Calhoun	1	0	1	0	0	0	0
Genessee	0	0	0	0	1	0	1
Alpena	0	0	0	0	0	1	1
Total Nov.	32	1,347	18	4	63	104	167
Total Oct.	23	1,108	10	5	66	117	183
Difference.	9	239	8	1	3	13	16

WELLS COMPLETED

MUSKEGON COUNTY

Muskegon—L. P. Haight, Lima Oil Corp. 3 50
A. Workman, Blue Arrow Pet. 1 ... gas
Bouwsma, Muskegon Oil Corp. 1 .... dry

Wells completed 3
Production 50
Dry 1
Gas 1

ISABELLA COUNTY

Chippewa—Sarah Roebuck, Pure Oil 3 150
Wilcox, Pure Oil 2 50
Thompson-Bortz, Mt. Pleasant Oil & Gas 3 100
Denver—P. J. Marthey, New York Pet. & Royalty 3 92
Keebebauch, Isabella & Co. 1 75
J. C. Epple 80 acres, Ohio Prod. & Ref. 1 200
J. C. Epple 40 acres, Ohio Prod. & Ref. 2 280
Wezenski, Ohio Prod. & Ref. 2 100
W. Brophy, Wittmer Prop. tr. 1 ..... dry
H. W. Cooley, Unknown 1 ..... dry
J. H. Ostrum, Unknown 1 ..... dry
E. G. Graham, Unknown 1 ..... dry
M. Menerey, Unknown 1 ..... dry
G. Mitchell, Unknown 1 ..... dry
R. Adams, Unknown 1 ..... dry
Isabella — P. Mahon, Gibson-Johnson-Borden 1 250
W. Johnson, J. C. Duryee 1 ..... dry
Broomfield—J. Weidman, Rockford Oil & Gas 1 ..... gas
Vernon—McManaman, Unknown 1 .... dry
Deerfield—H. J. Nicholson, Geneva Oil 1 gas

Wells completed 20
Production 1297
Dry 9
Gas 2

MANISTEE COUNTY

Grant—Wm. H. Croner, Swastika Oil & Gas 1 ..... dry
Frazier — W. J. Lambert, Eureka Oil Corp. 1 ..... dry

NEWYAGO COUNTY

Sheridan—Stone, Atlantic Exploration 1 dry
Denver—Walter Jones, Hesperia Development 1 ..... dry

Wells completed 2
Dry 2

LENAWEE COUNTY

Deerfield—Mrs. A. Long, LaDu Oil Corp. 1 ..... dry

LIVINGSTON COUNTY

Conway—Geo. Clearlton, Hillmur Oil 1 dry
Hopewell—Wilkinson, Empire Oil & Ref. 1 ..... gas

Wells completed 2
Dry 1
Gas 1

OSCEOLO COUNTY

Lincoln—Elwyn H. Johnson, Miller-Pollock Co. 1 ..... dry

CALHOUN COUNTY

Marshall—O. L. Hubbard, St. Clair Oil & Gas 1 ..... dry

REESER REPLIES TO RAILROAD SCHEME

(Continued from Page 105)

of oil and gas by tank car is as logical as to suggest legislation prohibiting automobiles and motor trucks from carrying passengers and freight which, but for this newer means of transportation, might move less conveniently and less cheaply by rail.

"The general public may think from the recommendation of railway executives that oil companies do not employ railway services; or that the railroads fear the loss of petroleum business they now enjoy.

"The movement of natural gas must be through pipe lines. It cannot be handled by rail. There is only one reason which might have influenced the joinder of natural gas pipe lines, namely, the unpatriotic notion that it would help the railroads if there might be legislation of this kind to increase the burdens of transporting natural gas, and hence to increase the cost of natural gas to the consuming public, in order that the railroads may collect a freight on coal. In other words, natural gas, the best and cheapest household fuel nature has supplied, shall be made to cost so much that it will be kept out of any markets where coal is now used. It is unthinkable that the railroads can go that far in commercial selfishness.

"Let us see to what extent pipe lines have taken petroleum business from the railroads.

"From the Interstate Commerce Commission reports of Class 1 roads, we find that in 1924 there was a total movement of 52,226,703 tons of crude and refined petroleum and products. This tonnage increased in the following year, and in every year thereafter. The gain for 1929 over 1924 was 41.8 per cent.

"How does that compare with the gain in total car load traffic, including petroleum? This business in 1924 was 1,147,605,218 tons, and like oil and its products, it too increased each year. However, the total gain in all car load traffic in 1929 over 1924 was but 13.5 per cent, or slightly less than one-third of the percentage gain made in petroleum alone, and if the business be segregated so as to leave out the contribution made by oil, the gain in other car load traffic would be less than that shown. In 1924 petroleum supplied 4.5 per cent of all rail freight; in 1929 it was 5.6 per cent.

"How are the railroads faring in 1930? The movement of petroleum and its products in the first six months increased 3.5 per cent over the corresponding period of 1929. In the same time, all car load traffic, including this increase in petroleum, showed a decrease of 9 per cent. It is apparent that the railroads' loss has occurred entirely in products other than those of the petroleum industry.

"How does the business supplied by the oil industry pay the railroads by comparison with that of other commodities based on tonnage originated and freight revenue received?

"The average rate per ton paid by agricultural products (which are perishable) in 1929 was $6.26, whereas that paid by petroleum and products was $5.32 per ton. Other leading industries paid much lower rates. For instance, timber and products averaged $3.71; iron and its associated products, $2.35; anthracite coal, $2.26; gravel and sand 85 cents. The wholesale price of gasoline in 1929 was 2 per cent less than in 1913, but freight rates on gasoline and other petroleum products increased 50 per cent in this period.

"History shows that new products, more efficient machines, better and cheaper methods of transportation, become established without regard to incidental injury they cause individuals or companies operating on the old lines, and that the march of economic progress cannot be stayed. As for the two industries concerned in this discussion, it is only necessary to recall the bitter war conducted by teamsters against the operation of the first pipe lines; in the case of the railroads, we had the equally futile fight of the stage coach and express messenger.

"It is not likely that the railroads will benefit in any manner if the oil companies are ordered to divest themselves of the ownership of pipe lines. Such separation certainly would not result in any increase in tonnage moved by rail. Nor would it mean any gain to the investor in railroads, pipe lines, utilities or other companies, but it would most surely put an increased burden eventually upon the consumer of petroleum products."

AGUSTIN HUMAN DIES

Agustin Human, 36 years of age, died of pneumonia at Tampico December 3. Mr. Human was a native of Austria, but moved to Mexico with his parents some 30 years ago. He was employed by the Mexican Petroleum Co. as a mechanic at Ebano for several years and later joined the Tampico Foundry & Machine Co. in the same capacity. He was subsequently promoted to the position of master mechanic, later became vice president, and finally president and principal owner of the company. He was favorably known to every oil man in Mexico and his services to the industry will be sadly missed. He was buried at Tampico December 4 and is survived by his wife and two sons.

R. H. THORNE DIES

Robert H. Thorne, founder and president of the Darling Valve & Manufacturing Co., who died at his home in Williamsport recently, was born in Oil City in 1863 of a family of western Pennsylvania pioneers. He started his career as a telegraph operator at the Pine station of the Standard Oil Co. In 1885 he went to Williamsport as secretary to the superintendent of that district. In 1888, with others, he organized the Darling company.

LOS ANGELES COMPANY PROTESTS RATE CUT

(Continued from Page 105)

handed down its latest order, in which reductions are ordered which "are carefully calculated and intend to effect a reduction in the company's gross domestic and commercial revenue of 9 per cent."

The decision ordering the additional rate slash, the petition says, is contrary to the constitutions of the States and the United States because it violates in substance the restrictions of the Fourteenth Amendment; because the rates, if enforced, will cut the company's net earnings to a point below the fair return prescribed by law; the decision is founded upon an erroneous conception and application of the law; it deliberately disregards uncontradicted evidence of depreciation values; it erred in determining the amount of working capital; erred in determination of the reasonable and proper operating expenses of the company; erred in finding the amount of gross earnings; erred in arriving at a fair rate of return, both on the historical cost and fair values bases; erred in interpreting the law which determines that which constitutes a fair rate of return; erred in placing upon the company the burden of proving existing rates reasonable and that it is not earning in excess of a fair return, and that the commission exceeded its jurisdiction.

The November 24 reduction order was not unanimous, a minority report being filed.

PRODUCTION IN PERU SHOWS GOOD INCREASE

Natural gasoline production in Peru during 1929 reached a total of 30,500,000 gallons, or 726,190 bbls., an increase of 84,766 bbls., or 13 per cent, over the 1928 total, according to recent official Peruvian statistics. Of the 1929 production, 27,015,000 gallons were produced at plants in the La Brea and Parinas Fields and 3,485,000 gallons at Lobitos.

Crude oil production amounted to 13,422,331 bbls., an increase of 1,415,929 bbls., or 12 per cent, over the 1928 total. The 1929 production was divided by fields: 10,821,120 bbls. from La Brea and Parinas, 2,538,408 bbls. from Lobitos and El Alto, and 62,803 bbls. from Zoritos. Despite the increase of 1,415,929 bbls. in local production, refineries operating in Peru treated only 210,241 bbls. more in 1929 than in the preceding year, the annual totals being 5,763,040 bbls. in 1929 as compared with 5,552,801 bbls. in 1928. Gasoline production during 1929 averaged 45 per cent of the crude treated, or approximately 2,493,000 bbls., as compared with a 1928 production of 2,406,000 bbls.

Increased shipments of crude oil to the Argentine accounted for the remainder of the advance in Peruvian production. Receipts of Peruvian crude at Argentine ports increased from approximately 1,572,000 bbls. in 1928 to approximately 3,137,000 bbls. in 1929, accounting for the major portion of enlarged receipts of crude oil at Argentine refineries.

During 1929, 260 wells were completed, of which 228 were listed as producers, showing a daily average initial output of approximately 200 bbls. Of the 3,658 wells drilled in Peru 2,195 were classed as producers at the close of 1929, with a daily average production of 16.75 bbls.

OIL STRIKE IN AUSTRIA

Raky-Danubia Company of Vienna, which has conducted drilling operations in the Vienna Basin of Austria, has brought in a well at 2,370 feet in that area. While the productivity of the well had not been determined at last reports, it was reported that considerable quantities were being baled. The well was drilled within 30 yards of a dry hole drilled in earlier in the year. Several Austrian companies, with Government support, have been conducting wildcatting operations, or the European equivalent thereof, in the Vienna Basin during the past several months.

Oklahoma-Kansas and Eastern Pipe Line Report

OKLAHOMA-KANSAS

Pipe Line Report for Month of October

Runs

	Month (bbls.)	Dy. Av. (bbls.)
Prairie P. L. Co.	3,131,000	101,000
Gulf P. L. Co.	1,304,473	42,080
Texas P. L. Co.	663,580	21,406
Magnolia P. L. Co.	1,526,813	49,252
Empire P. L. Co.	1,941,657	62,634
Cosden P. L. Co.	964,324	31,107
Stanolind P. L. Co.*	2,797,750	90,250
Oklahoma P. L. Co.	2,266,807	73,091
Other lines	5,607,900	180,900
Total October	20,203,304	651,720
Total September	19,907,520	663,584
Difference	295,784	11,864

Shipments

Prairie P. L. Co.	3,015,849	97,285
Gulf P. L. Co.	1,554,155	50,134
Texas P. L. Co.	1,402,414	45,239
Magnolia P. L. Co.	1,670,595	53,890
Empire P. L. Co.	2,199,420	70,949
Cosden P. L. Co.	868,359	28,012
Stanolind P. L. Co.*	3,264,951	105,321
Oklahoma P. L. Co.	2,259,884	72,899
Other lines	5,797,000	187,000
Total October	22,032,627	710,729
Total September	22,227,564	740,918
Difference	194,937	30,189

Stocks

Prairie O. & G. Co.*	37,795,000
Gulf P. L.-Gypsy Oil Co.	7,850,531
The Texas Company	3,963,520
Magnolia Petroleum Co.	5,650,076
Empire P. L. Co.	5,038,396
Mid-Continent Pet. Corp.	3,701,526
Stanolind Crude Oil Pur. Co.*	19,500,000
Oklahoma P. L. Co.	2,822,113
Carter Oil Co.	9,786,911
Other lines	23,928,000
Total October	120,126,073
Total September	120,894,006
Difference	767,963

*Estimated. Prairie and Stanolind shipments include Texas crude oil.

EASTERN PIPE LINE REPORT FOR MONTH OF OCTOBER

Runs From Wells

In the following table will be found the regular receipts from wells by various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky, Illinois, Indiana and Michigan for September and October:

	Sept., 1930	Oct., 1930
Nat. Transit	126,408.01	135,934.22
S. W. Pa. P. L.	76,584.80	82,961.29
Eureka P. L.	286,627.14	329,138.04
Buckeye P. L. (Macksburg)	335,374.02	354,552.31
Buckeye P. L. (Cleveland)	11,061.63	12,508.84
Buckeye P. L. (Lima, etc.)	93,802.50	94,154.99
Indiana P. L.	5,054.52	4,483.26
Cumberland P. L.	179,527.92	172,782.31
N. Y. Transit	39,583.19	35,614.60
Tide Water P. L.	25,675.10	27,863.60
Pure Oil	191,912.84	189,448.04
Stoll Oil Ref.	3,317.59	19,496.16
Bradford Tran.	322,923.66	344,649.24
Total	1,697,851.92	1,803,576.80
Daily average	56,595.07	58,179.89

Note—Indian Refining Co. had other receipts of 307,070.32 bbls.

Petroleum Deliveries

The following tables exhibit the shipments or regular deliveries of various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky and Indiana for September and October:

	Sept., 1930	Oct., 1930
Nat. Transit	484,508.49	479,245.86
S. W. Pa. P. L.	256,281.87	187,406.27
Eureka P. L.	244,918.35	247,221.25
Buckeye P. L. (Macksburg)	216,745.14	217,317.64
Buckeye P. L. (Cleveland)	1,712.02	2,200.10
Buckeye P. L. (Lima, etc.)	1,075,693.59	1,029,180.06
Indiana P. L.	1,128,187.89	548,201.97
Cumberland P. L.	136,895.24	126,573.84
Southern P. L.	66,892.64	69,576.30
N. Y. Transit	154,725.36	169,187.25
Northern P. L.	124,793.90	80,085.21
Tide Water P. L.	585,647.20	574,109.31
Pure Oil	183,063.50	274,485.43
Indian Ref.	373,510.38	334,226.70
Bradford Tran.	425,829.96	263,300.96
Tuscarora Oil	360,569.02	285,721.78
Total	5,819,974.55	4,887,939.93
Daily average	193,999.15	157,675.48

Gross Stocks

The gross stocks held by various pipe lines in the oil producing sections of New York, Pennsylvania, West Virginia, Ohio, Indiana and Kentucky and Indiana at the close of September and October:

	Sept., 1930	Oct., 1930
Nat. Transit	765,612.70	830,161.58
S. W. Pa. P. L.	542,827.03	543,474.32
Eureka P. L.	1,516,135.69	1,483,216.69
Buckeye P. L. (Macksburg)	665,285.49	656,581.88
Buckeye P. L. (Cleveland)	66,500.27	65,770.92
Buckeye P. L. (Lima, etc.)	5,065,078.07	4,992,794.24
Indiana P. L.	759,036.08	795,428.98
Cumberland P. L.	548,890.67	521,527.42
Southern P. L.	294,744.69	265,170.20
N. Y. Transit	139,813.32	178,747.41
Northern P. L.	480,715.71	459,246.38
Tide Water P. L.	957,099.18	811,218.64
Pure Oil	520,059.95	433,436.65
Indian Ref.	88,060.52	61,037.68
Tuscarora	276,805.35	104,667.41
Brad Trans.	125,354.27	235,074.97
Total	12,812,018.99	12,437,565.87
Decrease	235,032.85	374,453.12

Grades of Oil

The following table shows the amount of the different grades of oil held by the eastern pipe lines at the close of September and October showing gross stocks of the above fields:

	Sept., 1930	Oct., 1930
Pennsylvania	3,921,022.36	3,961,667.74
Lima	535,284.49	545,272.27
Kentucky	596,275.33	594,637.03
Mid-Continent	6,946,872.38	6,611,577.52
Illinois	10,632.05	3,102.03
Michigan	508,932.40	421,299.28
Total	12,812,018.99	12,437,555.87

Daily Average Runs

The following table shows the daily average runs of the Pennsylvania, Lima and Kentucky oil fields for the past four years:

	1927	1928	1929	1930
January	56,209	52,904	51,749	75,907
February	61,298	57,002	51,833	79,256
March	63,247	57,485	54,252	76,688
April	60,927	56,812	58,444	84,536
May	60,284	62,067	59,902	80,548
June	62,757	58,230	52,833	75,430
July	58,674	57,144	66,087	68,921
August	60,870	57,745	66,087	54,291
September	60,285	53,487	67,315	56,595
October	147,080	58,100	76,093	58,179
November	57,275	53,865	74,831	.....
December	53,089	52,025	74,561	.....

Daily Average Shipments

The following table gives daily average shipments from the Pennsylvania, Lima and other fields for the past four years:

	1927	1928	1929	1930
January	141,227	146,465	165,721	217,623
February	138,534	167,368	159,287	224,355
March	133,777	158,883	161,474	228,846
April	140,227	172,925	169,737	241,845
May	144,594	180,559	184,281	248,383
June	149,772	188,024	185,404	234,401
July	151,850	189,470	194,763	207,094
August	188,653	192,853	184,946	205,506
September	144,213	194,138	201,214	193,999
October	147,036	176,000	191,367	157,675
November	150,975	176,393	202,743	.....
December	144,504	173,572	186,257	.....

Gross Stocks

In the following table will be found the gross stocks of the various lines of the Pennsylvania, Lima and Kentucky oil fields, including oil received from other lines at the close of each month for the past three years:

	1928	1929	1930
January	12,276,710	7,596,564	12,220,045
February	12,180,419	8,738,835	12,991,561
March	12,239,725	9,002,058	13,247,217
April	11,740,125	8,978,172	13,233,961
May	11,602,468	8,903,560	13,052,953
June	11,287,678	8,921,275	13,396,855
July	10,819,331	9,211,595	13,268,562
August	10,236,743	9,440,643	13,047,051
September	9,660,910	9,443,067	12,812,018
October	9,229,709	9,441,101	12,437,555
November	8,366,553	9,868,528	.....
December	7,539,555	11,253,953	.....

The Illinois Field

The following table gives the report of the Illinois Pipe Line Co. in Illinois:

Gross stocks, October 31	1,991,058.92
Runs from wells	450,578.52
Other receipts	210,504.03
Regular deliveries	292,825.13
Other deliveries	296,877.49

The amount of Illinois oil run by the Tidewater Pipe Co. in October was 27,863.60 bbls. Deliveries were 27,863.60 bbls. Adding these figures to those of the Illinois Pipe Line Co. makes the runs and deliveries as follows:

1930—	Runs	Deliveries
October	478,442.12	320,688.73
1929—		
February	517,320.17	503,387.70
March	728,319.67	586,049.60
April	515,374.27	654,297.96
May	608,981.60	673,812.83
June	568,454.70	818,845.97
July	611,106.79	828,159.44
August	625,351.99	746,425.06
September	582,457.66	669,947.72
October	622,302.83	558,558.68
November	565,108.75	427,064.62
December	548,924.41	489,368.81
1930—		
January	543,387.95	498,293.93
February	548,416.33	414,536.59
March	631,944.49	469,119.53
April	530,074.22	509,304.60
May	606,147.37	504,069.84
June	572,662.57	468,658.81
July	604,529.54	388,454.47
August	594,843.12	375,742.43
September	457,001.11	371,691.63

Tide Water Pipe Co., Ltd., also delivered in October, 321,108.94 bbls. Oklahoma oil.

AVERAGE DAILY RECEIPTS OF CALIFORNIA CRUDE AND REFINED OIL AT ATLANTIC AND GULF PORTS

Average barrels per day in 1929-30—	ATLANTIC PORTS: Baltimore	Boston	New York	Philadelphia	Others	Total	GULF COAST PORTS: Galveston	New Orleans Baton Rouge	Port Arthur Sabine Pass	Tampa	Total	Total all ports
November	18,900	3,167	41,667	14,699	2,767	82,200	.....	.....	.....	.....	2,400	84,600
December	12,968	.....	46,129	13,613	7,225	79,935	.....	.....	.....	.....	2,335	82,290
January	18,484	1,936	34,257	22,323	9,516	86,516	.....	.....	.....	.....	2,258	88,774
February	7,678	.....	24,714	14,321	5,000	51,714	.....	.....	.....	.....	2,607	54,321
March	10,548	3,065	28,871	8,774	22,484	73,742	.....	.....	.....	.....	805	74,548
April	7,767	.....	14,369	11,600	7,433	41,167	...	.....	.....	.....	7,600	48,767
May	5,194	8,451	28,161	9,484	2,774	54,064	.....	.....	.....	.....	774	54,838
June	8,300	.....	33,933	20,767	2,333	65,333	.....	.....	.....	.....	2,400	67,733
July	17,355	7,774	43,419	23,839	6,452	98,839	.....	.....	.....	.....	4,645	103,484
August	7,418	8,742	38,968	21,226	5,258	81,613	.....	.....	.....	.....	97	81,710
September	6,300	6,400	25,600	13,400	9,567	61,267	.....	.....	.....	.....	2,433	63,700
October	2,516	3,065	27,258	16,419	4,903	54,161	.....	.....	.....	.....	5,355	59,516

AVERAGE DAILY IMPORTS OF CRUDE AND REFINED OIL AT PRINCIPAL UNITED STATES PORTS

Average barrels per day in 1929-30—	ATLANTIC PORTS: Baltimore	Boston	New York	Philadelphia	Others	Total	GULF COAST PORTS: Galveston	New Orleans Baton Rouge	Port Arthur Sabine Pass	Tampa	Total	Total all ports
November	23,633	18,900	125,200	41,100	28,200	237,033	2,233	12,533	6,667	2,500	23,933	260,966
December	29,774	15,387	133,742	31,000	23,775	233,678	5,548	16,484	6,613	1,774	30,419	264,097
January	21,161	10,678	134,581	38,677	43,806	248,903	4,322	6,453	.....	548	11,323	260,226
February	24,500	14,714	147,357	36,036	39,786	262,933	2,821	11,072	3,500	1,964	19,357	281,750
March	28,355	3,839	151,806	36,645	34,902	255,548	4,323	11,645	839	2,419	19,226	274,774
April	31,400	8,933	123,500	40,433	19,434	222,700	.....	7,400	2,433	4,167	14,000	237,700
May	24,129	9,322	174,194	39,291	28,226	275,161	8,194	11,548	2,935	1,323	24,000	299,161
June	51,533	15,667	121,067	45,033	25,033	258,333	4,413	17,367	2,167	1,333	25,300	283,633
July	42,097	9,548	154,968	37,935	36,032	280,580	5,678	9,161	2,097	2,387	19,323	299,903
August	39,032	4,484	145,613	33,355	25,097	247,581	8,419	9,323	8,548	3,000	29,290	276,871
September	38,867	8,533	150,933	34,500	25,567	258,400	6,433	12,234	.....	3,800	22,467	280,867
October	19,839	11,742	146,194	35,355	26,967	240,097	6,065	7,067	2,774	2,545	18,451	258,548

GROSS PRODUCTION OF CRUDE OIL IN THE UNITED STATES FOR 12 MONTHS

(In Barrels of 42 Gallons)

1929-30—		California	Oklahoma	Texas	Kansas	Arkansas	Louisiana	Rocky Mts.	Eastern	Total
October:	Month	26,895,160	20,821,646	26,412,167	3,429,468	2,000,027	1,956,326	2,392,952	4,482,000	88,389,746
	Daily average	867,586	671,666	852,004	110,628	64,517	63,107	77,192	141,358	2,851,253
November:	Month	21,317,540	19,193,760	24,896,024	3,430,560	1,911,060	1,853,565	2,350,110	4,029,000	78,981,629
	Daily average	710,585	639,792	829,868	114,352	63,702	61,785	78,337	134,300	2,632,730
December:	Month	21,706,554	20,092,876	25,609,522	3,549,066	1,917,071	1,878,352	2,378,754	4,168,100	81,299,594
	Daily average	700,179	648,156	818,294	114,486	61,841	60,592	76,734	134,455	2,622,568
January:	Month	21,983,242	20,302,984	25,284,352	3,272,197	1,817,685	1,780,969	2,151,090	4,216,000	81,309,519
	Daily average	709,137	671,064	815,624	105,587	58,635	57,451	69,390	136,000	2,622,885
February:	Month	20,885,660	17,977,634	23,314,637	2,965,704	1,608,376	1,738,425	2,027,984	3,780,000	74,298,419
	Daily average	745,916	642,058	832,668	105,918	57,442	62,087	72,429	135,000	2,653,517
March:	Month	19,699,979	19,112,306	25,503,880	3,504,395	1,817,871	1,943,092	2,337,028	4,231,500	78,149,253
	Daily average	635,483	616,526	822,679	113,045	58,641	62,680	75,388	136,500	2,520,942
April:	Month	18,768,742	19,541,310	24,799,768	3,724,253	1,724,460	1,909,552	2,324,810	4,134,000	76,946,896
	Daily average	625,625	651,377	826,658	124,475	57,482	63,652	77,827	137,800	2,564,897
May:	Month	19,044,444	20,587,503	26,214,068	3,978,385	1,659,895	1,914,290	2,565,319	4,402,000	80,365,804
	Daily average	614,337	664,113	845,615	128,335	53,545	61,751	82,749	142,000	2,592,445
June:	Month	18,020,795	19,754,900	25,643,705	3,765,060	1,704,060	1,923,621	2,519,190	3,880,000	77,211,331
	Daily average	600,693	658,496	854,791	125,503	56,802	64,187	83,973	129,300	2,573,711
July:	Month	18,802,024	18,033,514	25,910,939	3,541,409	1,713,680	2,079,769	3,275,894	3,844,000	77,200,329
	Daily average	606,517	581,694	835,835	114,239	55,280	67,089	105,674	124,000	2,490,323
August:	Month	18,770,466	17,355,034	25,838,513	3,491,530	1,700,102	2,151,120	3,193,241	3,417,000	75,517,106
	Daily average	605,499	556,614	833,833	112,630	54,842	69,391	103,011	110,226	2,436,036
September:	Month	17,984,306	16,509,130	23,640,726	3,405,510	1,583,280	2,008,060	3,239,010	3,396,000	71,766,013
	Daily average	599,477	550,304	788,023	113,517	52,776	66,935	107,967	113,200	2,392,199
Total 12 months		243,877,913	229,681,577	302,768,101	42,068,537	21,157,627	23,137,143	30,765,382	47,979,600	941,435,880